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THE
NATURAL HISTORY
OF
BRITISH INSECTS;

EXPLAINING THEM
IN THEIR SEVERAL STATES,
WITH THE PERIODS OF THEIR TRANSFORMATIONS,
THEIR FOOD, ŒCONOMY, &c.

TOGETHER WITH THE
HISTORY OF SUCH MINUTE INSECTS

AS REQUIRE INVESTIGATION BY THE MICROSCOPE.

THE WHOLE ILLUSTRATED BY
COLOURED FIGURES,
DESIGNED AND EXECUTED FROM LIVING SPECIMENS.

By E. DONOVAN.

VOL. III.

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GRAND III.



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THE UNIVERSITY OF CHICAGO

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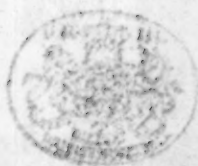




PLATE LXXIII.

PAPILIO LATHONIA.

LESS SILVER-SPOTTED BUTTERFLY,

OR,

QUEEN OF SPAIN.

FRITILLARY.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ clavated. Wings, when at rest, erect. Fly by day.

SPECIFIC CHARACTER.

Above yellow-brown, with spots of black. Beneath yellowish, variegated with dark brown, and black spots. Thirty-seven silver spots on the posterior wings.

Syst. Ent. 5. 17. 314.—*Linn. Syst. Nat.* 2. 786. 213.—

Fn. Sv. 1068.—*Geoff. Inf.* 2. 120. 6.—*Fab. Sp.*

Inf. 2. 110. 481.

Papilio Rigenfis minor aureus, maculis argenteis subtus perbelle notatus.—*Raj. Inf.* 120. 6.

Hufn. Pict. Tab. 11. *Fig.* 11.

Robert. Icon. Tab. 12.

Merian. Europ. 2. *Tab.* 157.

Roes. Inf. 3. *Tab.* 10.

Esp. Pap. 1. *Tab.* 18. *Fig.* 2.

Schaeff. Icon. Tab. 143. *Fig.* 1. 2.

Seb. Mus. 4. *Tab.* 1. *H.* 1—4.

We have several species of the *Papilio* tribe, which are highly valued in England either for their beauty or scarcity; the *P. Lathonia* is little, if by any means, inferior to the most beautiful; and as a rare Insect is esteemed an invaluable acquisition.

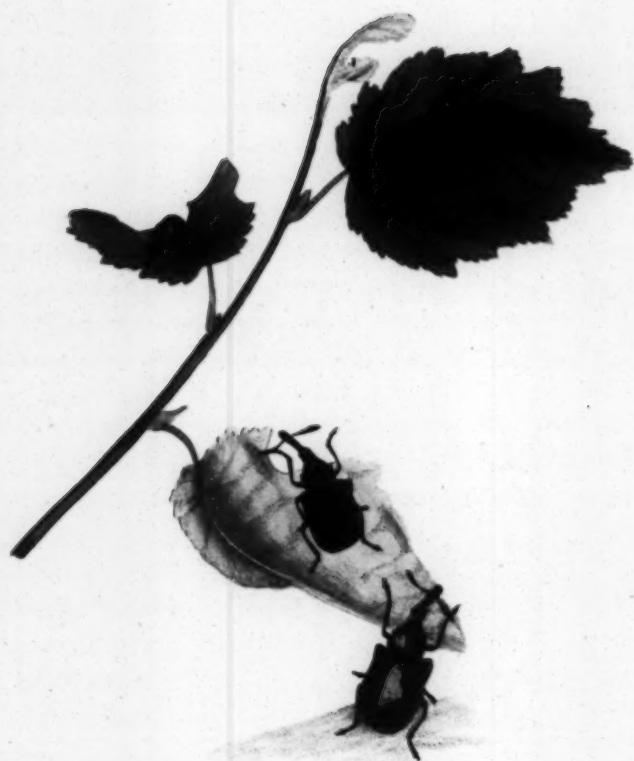
The upper side is only a plain orange or brown colour, with spots of strong black, and does not in general appearance differ materially from the greasy Fritillary Butterfly, which is very common in most situations; but the underside is entirely unlike every other English Insect: the bright silver splashes on the under wings are singular in their form, and so beautifully relieved by the orange ground colour, and variegation of black between, as to form a delightful contrast of the most pleasing colours.

Whether this species was originally a native of this country, may be doubtful; we certainly have the most respectable testimonies of its being taken alive in different parts of the kingdom, but it might have been introduced by accident in the larva, or more probably in the pupa state: it has been seen at *Bath*; and either *Moses Harris*, or some of his friends, bred it from the caterpillar. "Queen of Spain Fritillaria changed into chrysalis *April*, appeared in the winged state *May 10th*.—*Gambling Gay wood*, near *Cambridge*."

It has also been taken near *London*; *Mr. Honey*, of *Union-street*, in the *Borough*, took one a few years since in his garden. I requested the favour of whatever information he could communicate respecting this circumstance, and received a note with these words:—

"*September 9th, 1785*.—I took the Queen of Spain Butterfly in my garden.
(Signed) W^M. HONEY."





P L A T E LXXIV.

CURCULIO BETULÆ.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ clavated; elbowed in the middle, and fixed in the snout, which is prominent and horny. Joints in each foot, four.

• Snout long.

SPECIFIC CHARACTER.

Green-gold. Antennæ and eyes black. The anterior verge of the thorax spinous in one sex only.

Syst. Ent. 130. 16.

Linn. Syst. Nat. 2. 611. 39.

Fn. Sv. 605.

Degeer Inf. 5. 248. 5. *Tab.* 7. *Fig.* 25.

Rhinomacer, &c. *Geoff. Inf.* 1. 270. 2.

Frisch. Inf. 12. 17. *Tab.* 8. *Fig.* 2.

Sulz. Hist. Inf. *Tab.* 4. *Fig.* 5.

Scharff. Icon. *Tab.* 6. *Fig.* 4.

The Linnæan description of the *Curculio Betulæ*, so nearly corresponds with that of *C. Populi*, that if we allow for the variation of colour to which all Insects are subject, a line can scarcely be drawn between the two species; the most material distinction is the underside of *C. Betulæ* being of the same colour as the back; but the underside of *C. Populi* is purple, and smaller,

The description which *Linnaeus* has given of our species is, "longi-rostris, corpore viridi aurato subtus concolore;" and *Degeer* has described it in similar words. It is evident that *Linnaeus* had reason to suspect some difference of colour between the two sexes, but perhaps he never imagined the *C. Purpureus* *, which he had before described, was also one sex, or a variety of the same Insect.

Geoffroy says, "*Rhinomacer* totus viridi cœruleus;" and *Fabricius* adds, "Variat sæpius colore omnino cœruleo. Alter sexus thoracem antrosum spinosum gerit." How those different descriptions may be reconciled, so as to be descriptive of the two sexes of *C. Betula*, will appear more clearly on farther observation.

Late in *May*, this season, being at *Darent-Wood, Dartford*, I met with one of the green kind, and one of a dark blue colour, with a shade of green on the elytra; I could not be deceived, they were male and female; as a farther corroboration, I met with a second pair, in a similar situation; and on the day following a third: the blue one of this last pair had not the shade of green as on the former, but was of a rich glossy blue purple; and I am greatly mistaken if it is not the *C. Purpureus* of *Linnaeus*, or the Insect which is arranged in *English Cabinets* for that species.

I communicated the circumstance of meeting with those two Insects, which have always been considered as distinct kinds, to a person who also was collecting Insects in the wood, on the same day, and he informed me that he had just before discovered them in the same situation. I have examined them very carefully, but cannot discover any spines on the thorax of the green and gold kind, though I have five of them, but the three purple specimens are all spinous, as described by authors. I am of opinion, that the bright coloured specimens are all females, and those which are purple, I imagine, are males.

I mentioned the circumstance to an eminent Entomologist, and he at first suspected they might be mule Insects, generated between the

* *Berkenhout*, in his *Outlines of the Natural History of Great-Britain*, says, *C. Purpureus*. Glossy Purple. Snout very long. *Petiver* found this at *Epsom*.

C. Betulæ and the *C. Purpureus*, but that could not be the case, as they were all in copulation when taken.

We have been the more minute in this account, as we consider the confounding of one species with another should ever be avoided, with as much care as the separation of varieties into distinct species; both tend to confuse, or subvert that truth which should be the guide of every enquirer into nature.

I have received a letter from my respectable friend *T. Marsham*, Esq; Sec. L. S. accompanied with a specimen of the green kind of *C. Betulæ*, that is spinous on the thorax; together with one of the blue or purple kind, which is spinous also: he informs me, that though his purple specimen has spines, he is very certain he has had one without; hence it appears to me that they admit of great variation; indeed it would afford the most presumptive argument, that there are males and females of both colours. Among the purple specimens which I took, there was a considerable difference in their colours, but of the five green specimens scarcely two exactly agreed; one in particular partook so much of a vivid crimson that it might easily have been mistaken by a cursory collector for the *Curculio Bachus*.





PLATE LXXV.

NOTONECTA GLAUCA.

COMMON BOAT-FLY.

HEMIPTERA.

GENERIC CHARACTER.

Antennæ beneath the eyes. Wings crossed, and complicated. Feet formed for swimming. Hind feet hairy.

SPECIFIC CHARACTER.

Head yellow; eyes brown, large. Thorax, anterior part yellow, posterior black. Shells pale yellow brown, with a bright brown anterior margin, spotted with black. Beneath brown. Feet of two joints. Length six lines.

Syst. Ent. 689. 1.—*Linn. Syst. Nat.* 2. 712. 1.—
Fn. Sv. 903.

Notonecta, &c. *Geoff. Inf.* 1. 476. 1. *Tab.* 9. *Fig.* 6.

Nepa notonecta, &c. *Degeer Inf.* 3. 382. 5. *Tab.* 18. *Fig.* 16. 17.

Cicada aquatica Mouffeti. Raj. Inf. 58.

Notonecta, &c. *Petiv. Gazolph. Tab.* 72. *Fig.* 6.

Cimex aquaticus angustior. Frisch. Inf. 6. 28. *Tab.* 13.

Cimex aquaticus. Roef. Inf. 3. *Tab.* 27.

Bradl. Nat. Tab. 26. *Fig.* 2. E.

Huffnag. Inf. Tab. 12. *Fig.* 19.

Sulz. Inf. Tab. 10. *Fig.* 67.

Schaeff. Elem. Tab. 90.

—— *Icon. Tab.* 33. *Fig.* 5. 6.

Fuesly Inf. Helv. 24. 468.

This

This species is by far the most common of the *Notonecta* genus in *England*. It is an aquatic Insect, undergoes its several changes in the water, and in the last state is furnished with wings for flight.

In the day-time it may be observed on the surface of still waters; it always swims on its back, with its legs extended. In the evening it flies in the air. Found during most of the summer months. Most authors have described the upper shells as being of a brown colour, variegated with clouds of black; but this appearance is not constant in every specimen; they lose much of that colour after being taken out of the water, or if the wings are expanded.





P L A T E LXXVI.

PHALÆNA FUNALIS.

FESTOON MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the base. Wings, when at rest, generally contracted. Fly by night.

SPECIFIC CHARACTER.

Upper wings orange, rather inclining to brown; with a black line nearly of a triangular form on each; when the wings are expanded the lines resemble a festoon. Under wings orange, clouded and frosted with black; margin pale.

We are happy to present our Subscribers with the figure of a Moth which is scarcely known among the English Collectors, and we may venture to assert on the best authority has not a place in any cabinet of Insects in this metropolis, except that of the Author; indeed the only person who appears to have been so fortunate as to meet with it except himself, is Mr. Lewin, who formerly resided at Dartford; he considered it as such an invaluable rarity, that had not a figure of it been discovered in *Roefel*, it would no doubt have been published in the Transactions of the Linnæan Society; it must, however, be observed, that the Insect *Roefel* has figured is a foreign specimen.

On the communication of Mr. JONES, of *Chelsea*, we presume that this Insect was formerly known among the English Collectors, and received from them the appellation *Fesloon Moth*, but it must have been extremely rare even at that time, as it does not appear in Harris's List of English Moths, nor has a single specimen, or its remains, been found among the old Collections, which have been handed down to the Entomologists of the present day.

On the 16th of August, 1793, I shook the Caterpillar from one of the high branches of an oak-tree, in Darent wood, Kent; it remained motionless for some time when in the net, and I concluded that it might have sustained an injury by its fall; but I soon after discovered that it was naturally a sluggish, inactive creature, and had received no damage; it remained several days in the Caterpillar state, but as it was almost ready to change into Chrysalis, I had only an opportunity of being convinced that oak was its proper food.

This Caterpillar is a most singular creature; at one time it would flatten itself, and be considerably extended in breadth, or length; at another time it would gather itself up like an hedge-hog, or become almost round, and in a few minutes after it would be flat again; and frequently the orange colour on the back would be obliterated; sometimes it so nearly resembled the Caterpillars of several of the *Papilio* tribe, that I suspected it to be one of the *Hair-streak Butterflies*, or rather the Caterpillar of a new species. On the 23d of August it began to spin, and in a short time after its case was completed.

The case in which it passed to the Pupa state, was very firmly constructed, and precluded an opportunity of observing the different symptoms of change, which would otherwise have been visible. This case, which was exactly in the form of an egg, was at first of a pale flesh colour, but in the course of a few days it had heightened to a very fine sanguineous, and after to a scarlet, or nearly vermilion colour; this colour it retained for several months, but as the time for the emancipation of the Moth within approached, the brightness of

red

red somewhat abated, though even after the Fly came forth, much of the original colour remained.

The manner in which it bursts open the case is rather singular; it does not force an opening in an irregular form, as most Insects which spin a case, but describes an exact circle within at one end; after this it divides its case according to that circle, only leaving a small portion to act as an hinge; when it has extricated itself from the Chrysalis, it forces the top of the case back, as shown in our Figure, and thereby a free passage is opened for its delivery.

The inside of the case is perfectly smooth, and appears as if polished by art; it is of a pale blue colour, the Chrysalis within is brown.

The Fly came forth on the 12th of July, 1794.

The inside of the tube is partially smooth, and appears as if polished by use, and the outside is covered with a thin, brown, papery coating.





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PLATE LXXVII.

FIG. I. and FIG. II.

PHALÆNA CRISTALANA.

DARK-BUTTON MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the base. Wings, in general contracted when at rest. Fly by night.

TORTRIX.

SPECIFIC CHARACTER.

Upper wings yellow-brown, with dark shades; a broad irregular white mark, and a tuft or button, on the center of each. Head and thorax white clouded. Lower wings pale brown.

This singular Moth is very rarely met with; it has been taken in *Coombe-wood, Surry*, and in *Kent*, but even in those places it is very uncommon.

It is distinguished by the unusual form of the white markings on the upper wings, and particularly by the tuft or button which is situated in an upright position near the center of each; those tufts appear only slightly feathered on the upper parts to the naked eye, but when one of them is examined with a microscope, or even common magnifier, it presents the appearance of a bundle of fibres, inclosed within a thin membrane; narrow at the base, encreasing in bulk near the middle,

and expanding at the summit into a number of shoots, in the form of a crest: several other tufts are dispersed near the extremities of the upper wings, but they are not conspicuous to the naked eye.

I have seen an Insect which corresponds in every respect with this specimen, except that it had a line of a dull ochre colour along the posterior margins of the upper wings; but I suspect it to be either a variety, or perhaps only the difference of sex.

Linnaeus has not described this insect, neither can we discover any description of it in the writings of *Fabricius*; and I have no doubt of its being a nondescript species,

The singular crested tufts, with the white markings on the upper wings, furnish such an ample specific distinction, that we have named it *Cristalana*.

Found early in the month of *August*.

Fig. I. represents the natural size, Fig. II. its magnified appearance,

FIG. III. and FIG. IV.

PHALÆNA RADIATELLA.

LEPIDOPTERA.

PHALÆNA.

TINEA.

SPECIFIC CHARACTER.

First wings, buff, with shades of orange; striped or rayed with a very dark purple from the base to the apex of each; a white stripe near to, and parallel with the posterior margin, and two spots of the same colour near the center of each wing. Second wings lead colour, deeply fringed.

This

This insect also appears to be a nondescript species; we have called it *Radiatella*, or rayed, from the form of the dark stripes which rise from the base, and spread in the form of rays to the apices of the upper wings. It is very liable to change after death, and particularly the buff colour, which appears very bright when the insect is fresh, but is sometimes so altered in appearance when placed in the cabinet, that an intermixture of that colour can be scarcely distinguished between the rays of purple; we mention this circumstance, as very few small lepidopterous insects are subject to such alteration.

It is found about the same time as the *Phalæna Cristallana*, and I believe is equally scarce.

Fig. III. represents the natural size. Fig. IV. its magnified appearance.

PLATE XIX.

The insect also appears to be a new species; we have called it *Phaenocarpa*, as it differs from the form of the dark stripes which this genus usually has, and placed in the genus of *Phaenocarpa* of the up- per wing. It is very little to compare with *Phaenocarpa* but not entirely new, which appears very distinct when the insect is fresh, but is somewhat so when it is dried in spirit. When placed in the cabinet, this is somewhat so that it can be easily distinguished between the other species of the genus, as very few small *Phaenocarpa* insects are known to have a similar pattern.

It is found about the same time as the *Phaenocarpa* *Olivacea*, and I have a single female.

The III species of the genus *Phaenocarpa*, T. IV, is described as follows:

Phaenocarpa *Olivacea*, T. IV, is described as follows:

PLATE XX.

The insect also appears to be a new species; we have called it *Phaenocarpa*, as it differs from the form of the dark stripes which this genus usually has, and placed in the genus of *Phaenocarpa* of the up- per wing. It is very little to compare with *Phaenocarpa* but not entirely new, which appears very distinct when the insect is fresh, but is somewhat so when it is dried in spirit. When placed in the cabinet, this is somewhat so that it can be easily distinguished between the other species of the genus, as very few small *Phaenocarpa* insects are known to have a similar pattern.





P L A T E LXXVIII.

FIG. I. and FIG. II.

CHRYSOMELA BOLETI.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ knotted, enlarging towards the ends. Corselet margined.

SPECIFIC CHARACTER.

Antennæ, head, and thorax black, shining. Elytra black, with two jagged belts of bright orange colour; extremity orange.

Syst. Ent. 97. 18.—*Linn. Syst. Nat.* 2. 591. 36.

—*Fn.* 8v. 52. 7.—*Sulz. Hist. Inf. Tab.* 3.

Fig. 9.

Diaperis, *Geoff. Inf.* 1. 337. *Tab.* 6. *Fig.* 3. *mal.*

Diaperis, *Schaeff. Elem. Tab.* 58.—*Icon. Tab.* 77. *Fig.* 6.

Dermeestes, &c. *Vdm. Diff.* 4. *Fig.* 3.

Tenebrio Boleti, &c. *Degeer Inf.* 5. 49. 9. *Tab.* 3. *Fig.* 3.

Coccinella fasciata. *Scop. Ent.* 247.

The *Chrysomela Boleti* is not very frequent in this country; it is almost invariably found in the hollows of some of the *Boletus* tribe of Fungi *, which grow on the stumps of trees in the month of *May* or *June*.

* *Mushrooms.*

FIG. III. and FIG. IV.

CHRYSOMELA CERUINA.

COLEOPTERA.

CHRYSOMELA.

SPECIFIC CHARACTER.

Oblong. Dull brown, beset with very fine hairs.

Syst. Ent. 116. 1.*Linn. Syst. Nat.* 2. 602. 115.—*Fn. Sv.* 575.

There can remain very little doubt of those insects N° III. and N
IV. being sexes of the same species.

Rarely met with near London. May and June.





P L A T E LXXIX.:

GRYLLUS BIGUTTULUS.

HEMIPTERA.

Shells, or upper wings, semi-crustaceous, not divided by a straight future, but incumbent on each other. Beak curved downward.

GENERIC CHARACTER.

Head maxillous, and with palpi. Antennæ filiform, or taper. Wings folded. Hind legs strong for leaping.

SPECIFIC CHARACTER.

Head and thorax dark brown, marked with lines of white. Wings pale brown edged with yellow, and several whitish marks near their extremity. Body beneath, and legs, red-brown.

Linn. Syst. Nat. 2. 702. 55.—*Fn. Sv.* 875.

ACRIDIUM BIGUTTULUM, &c. *Degeer. Inf.* 3. 479. 6.

GRYLLUS BIGUTTULUS. *Schæff. Icon. Tab.* 190. *Fig.* 1. 2.—

Fab. Spec. Inf. 1. 370. 45.

Though few insects require more elucidation to be well understood than those of the *Gryllus* genus, no part of the science has been less regarded even by systematic writers, who certainly appear to have been most interested to obtain a satisfactory knowledge of them: the present species is continued by *Fabricius*, in his *Species Insectorum*, under the *Linnean* genus, and specific name GRYLLUS BIGUTTULUS.

All of the *Grylli* are very liable to variations in colour, and particularly after death; green changes to brown of various hues, the light colours become dark, and the dark colours fade, so that no just idea of the true appearance can be formed except from the living insects.

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The larva, and pupa, of most species of the *Gryllus* genus, scarcely differ in appearance from the perfect insect, except that in the two first states they are apterous, or without wings, and either leap or walk; but in the last state they are furnished with four membranaceous wings.

The subject of our present description is not an unfrequent species near London; it is taken in the perfect state in the month of August.

LOCUSTA VARIA.

SPECIFIC CHARACTER.

Antennæ very long. Thorax green, with a longitudinal line of yellow. Anterior wings membranaceous, green. Posterior wings very delicate pale green. Body pale green, with the three last joints pale black.

Syst. Ent. 287. 24.

Locusta thalassina, &c. *Degeer. Inf.* 3. 433. 3.

Goed. Inf. 2. 142. *Tab.* 40.

Frisch. Inf. 12. *Tab.* 2. *Fig.* 4.

Sulz. Hist. Inf. Tab. 8. *Fig.* 9.

Locusta Varia, *Fab. Spec. Inf.* 1. 360. 25.

It is very plenty in the month of August, is concealed among the foliage of the lower branches of the oak in the day-time, and is not often observed to fly except when the morning dew is on the herbage, or evening approaches. Leaps, if disturbed.

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P L A T E LXXX.

P H A L Æ N A F U L I G I N O S A.

RUBY-TIGER MOTH.

LEPIDOPTERA.

G E N E R I C C H A R A C T E R.

Antennæ taper from the base. Wings, in general, contracted when at rest. Fly by night.

* Spiral trunks; back smooth without crest.

S P E C I F I C C H A R A C T E R.

Superior wings red brown; a black dot near the center of each. Inferior wings, rose colour with black marks *. Abdomen, rose colour with a chain of black spots down the center, and a row of dots on each side.

Syst. Ent. 588. III.

Linn. Syst. Nat. 2. 836. 95.—*Fn. Sv.* 1159.

Raj. Inf. 228. 13.

Harr. Aurel. Tab. 12.

— *Inf. Anglic. Tab.* 8. *Fig.* 7.

Anmir. Inf. Tab. 30.

Roef. Inf. 1. *Phal.* 2. *Tab.* 43.

Wilk. Pap. Tab. 3. a. 14.

* The black marks on the under wings of different specimens vary very much; in some the black occupies half the space of the wings; in others the rose colour is predominant.

The leaves of Alder or Birch, the Turnip, Mustard, and Ragwort, with many other vegetables, are noticed by different authors, as being proper food for the Ruby Tiger Moth in the larva state; I have observed that they prefer the leaves of the Ragwort or Groundsel.

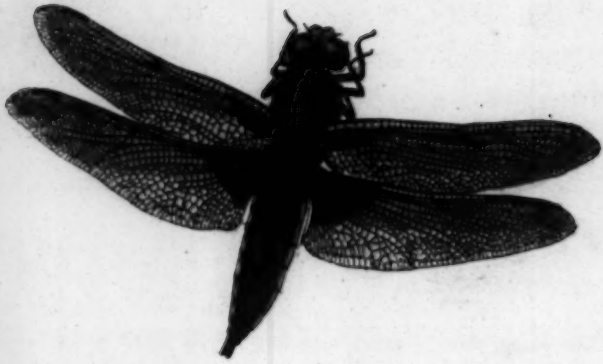
The Caterpillars are small in the month of May, in June they pass to the pupa form, and early in the month following, appear in the winged state *.

This species is less frequent than the Cream Spot Tiger Moth †, lately figured in this work.

* In a forward season like the present, the time of their appearance in the different states may vary considerably, especially as some may have two, or even three broods in one summer. I have a Moth from a second brood, which passed to the pupa form the 25th of July, and came forth the 10th of August, 1794.

† *Pb. Villica.*





P L A T E LXXXI.

LIBELLULA DEPRESSA.

NEUROPTERA.

GENERIC CHARACTER.

Wings four. Naked, transparent, reticulated with veins or nerves,
Tail without sting.

SPECIFIC CHARACTER.

Eyes brown. Head and thorax greenish, with two yellow transverse lines. A dark spot on the exterior margin of the wings. Body rather depressed; that of the female, bright brown with yellow marks on each division; that of the male, blue grey, with similar marks of yellow.

Syst. Ent. 420. 2.

Linn. Syst. Nat. 2. 902. 5.—*Fn. Sv.* 1413.

Libellula, &c. *Geoff. Inf.* 2. 226. 9.

Libellula, &c. *Raj. Inf.* 49. 5.

Reaum. Inf. 6. *Tab.* 35. *Fig.* 1.

Roef. Inf. 2. *Aqu. Tab.* 6. *Fig.* 4.

Tab. 7. *Fig.* 3.

Edw. Av. Tab. 333.

The Male Insect of the *Libellula Depressa*, differs so very materially in colour from the female of that species, that we cannot imagine it will be improper to give a figure of the former in our present

Number, though the latter is already represented in the early part of the Work.

We have nothing particular to add to our former account of its history. In the larva and pupa state, it is found crawling at the bottoms of pools or ditches, and subsists on the larvæ of Gnats and other Insects; but in the last state, it leaves its aquatic abode, and subsists on small winged insects, especially Moths; it is not uncommon to see one of this species stop short in its flight, dart down like a Hawk upon a Moth or Butterfly, and tear it to pieces in an instant; or fly with it in its mouth, to some more convenient place to devour it.





P L A T E LXXXII.

PHALÆNA USTULARIA.

EARLY THORN MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the base. Wings in general contracted when at rest. Fly by night.

* *Geometra*.

Antennæ of the male feathered; of the female setaceous, or like a bristle.

SPECIFIC CHARACTER.

Wings angulated, indented, light brown varied with shades of a scorched colour. Three waves of dark brown across each superior wing; together with a spot of orange or bright brown colour, at the base, and another nearly of the same colour on the exterior margin of each.

Among the several Moths of the *Geometra* division of *Phalænæ* which are known to the English Collectors by the trivial distinction, *Thorn Moths*, our present Insect is neither the most conspicuous, or rare; it is however a beautiful creature when taken immediately from the Pupa case, but rarely fine, when caught in the fly state, in the fowling-net; the down being of such an exquisite texture that the slightest touch must inevitably damage its appearance.

F

The

The Pupa is marked with a brown colour at every annulation immediately after the Caterpillar has passed to that state, but as the creature within becomes more perfect, that brown is gradually changed to a dark, or black colour.

I have observed much variation in the colours of different specimens of this species; of three male Insects which I have bred this season, one only corresponded with the annexed figure, one inclined much more to a red brown, and the other to a dull purple.

I met with the Caterpillars on the oak, and they always preferred that food to any other. The Caterpillars are small in July, they pass to the Pupa state in Autumn, and the Moths are to be taken about the middle of March.

Although, as we have just observed, this Insect does not particularly claim our regard as a rarity, it does not appear to have been described by *Linnaeus*, or even by *Fabricius* in his *Species Insectorum*; and no account of it is included in *Berkenhout's Outlines*, in *Harris's Catalogue of English Insects*, or any other work we have had an opportunity of perusing.

In its manners, the Caterpillar is not more singular than in its form; when young it is very active and in continual motion; but as it grows larger it becomes more sluggish in its disposition: it will sometimes affix itself by its hind feet to one of the extreme branches of the tree on which it feeds, in the same manner as shewn in our plate, and will remain in that posture several hours without the least apparent signs of life.





P L A T E LXXXIII.

CICADA CORNUTA.

HORNED CICADA.

HEMIPTERA.

Shells or upper wings semi-crustaceous, not divided by a straight future, but incumbent on each other. Beak curved downward.

GENERIC CHARACTER.

Antennæ taper. Shells membranous, in each foot three joints. Hind legs strong for leaping.

SPECIFIC CHARACTER.

Black-brown. Antennæ short. Thorax bicornuted, with the posterior part elongated almost to the extremity of the abdomen. Wings diaphanous, crossed. Brown veins on the shells.

Syst. Ent. 676. 8.

Linn, Syst. Nat. 2. 705.—*Fn. Sv.* 879.

CICADA, &c. *Geoff. Inf.* 2. 243. 18.

Schreb. Inf. 11. *Fig.* 3. 4.

Degeer. Inf. 3. 181. 3. *Tab.* 11. *Fig.* 22.

Ranata cornuta. *Petiv. Geozoph. Tab.* 47. *Fig.* 2. 3.

Sulz. Inf. Tab. 10. *Fig.* 63.

Schæff. Icon. Tab. 96. *Fig.* 2.

Scop. Carn. 340.

Membracis cornuta. *Tab. Spec. Inf.* 2. 317. 9.

The Cicada Cornuta is a native of Germany and other parts of Europe, as well as of England; with us it is by no means common. It is met with in the month of May, or June; Berkenhout says it is found on trees, ferns, &c. I have taken two specimens this season, one at Coombe-wood, Surrey, the other at Dartford; they were both concealed on the under sides of some dock leaves.

At Fig. I. the creature is represented of the natural size, with the wings expanded; at Fig. II. one is given in a standing position; and at Fig. III. the front of the head and singularly constructed thorax is shewn as they appear before the speculum of an opaque microscope.

Fabricius has placed this Insect in a division of the seventh Class of his Genera Insectorum, RYNGOTA *Membracis*.





PLATE LXXXIV.

FIG. I.

LEPTURA ARCUATA.

GREAT WASP BEETLE.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ tapering to the end. Shells narrower at the apex. Thorax somewhat cylindrical.

SPECIFIC CHARACTER.

Black. Antennæ length of the body. Target yellow. Three transverse yellow lines on the head; three on the thorax and three yellow arched lines, with as many spots of the same colour on each shell.

LEPTURA ARCUATA. *Linn. Syst. Nat.* 2. 640. 21. ed. XIII.—
Fn. Sv. 696.

LEPTURA, &c. *Geoff. Inf.* 1. 212. 10.

CERAMBYX niger, &c. *Vdm. Diff.* 30.

SCARABÆUS, &c. *Frisch. Inf.* 12. *Tb. n.* 22. p. 31. *Tab.* IV.

Fig. 1—5.

CERAMBYX, &c. *Leche Nou. Spec.* 30.

SCARABÆUS. *Raj. Inf.* 83. 23.

Petiv. Gazoph. Tab. 63. *Fig.* 7.

Schæff. Icon. Tab. 38. *Fig.* 6.

Tab. 107. *Fig.* 2. 3.

CALLIDIUM arcuatum. *Fab. Spec. Ent. n.* 26. p. 192.

Spec. Inf. T. I. n. 35. p. 241.

Mant. Inf. T. I. n. 50. p. 155.

Ent. Syst. T. II. n. 64. p. 333.

Der Bogen-Widderkäfer. Der Bogenstrich. Der Holzkäfer mit Bogenbinden. La Lepture aux croissans dorés, Panzer Faun. Inf. Germ. In. N^o IV. p. 14.

This is the rarest species of the *Leptura* genus we have in England; it is found among rotten wood. May.

Fabricius having separated the *Lepturæ* of Linnæus, and arranged them under three distinct generic divisions, as *Callidium*, *Donacia*, and *Leptura*, it will be proper to observe, that the *CALLIDIUM Arcuatum*, *Class I. ELEUTERA, Fab. Spec. Inf.* is the *LEPTURA Arcuata* of Linnæus; to this we must also add that the *LEPTURA Arcuata*, figured in the seventh Number of *Panzer's Faunæ Insectorum Germanicæ Initia*, is a very different species to our specimen, is a native of Austria, and received its name from *Helwig*.

FIG. II.

LEPTURA MYSTICA.

SPECIFIC CHARACTER.

Antennæ and legs black. Head and thorax black. Shells black, with a triangular grey spot and two white lines on each; shoulders red-brown.

Linn. Syst. Nat. 2. 639. 18.—Fn. Sv. 693.

LEPTURA, &c. Geoff. Inf. 1. 217. 15.

CERAMBYX albo fasciatus niger, &c. Degeer. Inf. 5. 82. 19.

CERAMBYX quadricolor. Scop. Ent. Carn. 177.

SCARABÆUS, &c. Raj. Inf. 83. 26.

Schæff. Icon. Tab. 2. Fig. 9.

CALLIDIUM mysticum. Fab. Spec. Inf. 1. 244. 51. 45.

Common

Common in the months of *May* and *June*; is usually found in the open path-ways near woods. It appears to be most peculiar to a sandy or light gravel soil.

FIG. III.

LEPTURA AQUATICA.

SPECIFIC CHARACTER.

Green-gold. Antennæ black. A tubercle on each side of the corselet. Shells striated and truncated. Posterior thighs larger with a spine on the interior side.

Linn. Syst. Nat. 2. 637. 1.—*Fn. Sv.* 677.

LEPTURA aquatica spinosa, &c. *Degeer. Inf.* 5. 140. 80. *Tab.* 4. *Fig.* 14. 15.

STENOCORUS, &c. *Geoff. Inf.* 1. 229. 12.

CANTHARIS, *Raj. Inf.* 100. 1.

SCARABÆUS. *Frisch. Inf.* 12. 33. *Tab.* 6. *Fig.* 2.

DONACIA crassipes. *Fab. Spec. Inf.* 1. 245. 52. 1.

This Insect is very common in *England* during the early part of summer; it lives on aquatic vegetables, and runs with much celerity when disturbed. It has also been found among the decayed wood of willow trees.

Fabricius has altered its specific, as well as its generic title; it stands in his System as *DONACIA crassipes*.

F I G. IV.

L E P T U R A E L O N G A T A.

S P E C I F I C C H A R A C T E R.

Antennæ with black and brown spots alternately. Head and thorax black. Shells yellow, tipped at the extremity with black; also two transverse bands and two spots of the same colour. Thighs and part of the legs light brown. Feet black.

Degeer. Inf.

Nearly as rare as the *Leptura Arcuata* in this country; it is taken in dry sandy places, or among loose chalk; the soil of *Dartford* and some other parts of *Kent* is particularly favourable to the increase of those creatures. Met with in the month of *June*.

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PLATE LXXXV.

PHALÆNA VINULA.

PUSS MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the base. Wings in general contracted when at rest. Fly by night.

SPECIFIC CHARACTER.

Antennæ feathered. Wings grey, streaked and waved with dull black; somewhat diaphanous. Thorax and Abdomen grey spotted with black.

Linn. Syst. Nat. 2. 815. 29.—*Fn. Sv.* 1112.

Geoff. Inf. 2. 104. 5.

Raj. Inf. 153. 5.

Geod. Inf. 1. Tab. 65.

2. Tab. 37.

Merian. Europ. Tab. 39. Fig. 140.

Albin. Inf. 11. Tab. 5.

Sepp. Inf. 4. Tab. 5.

Wilk. pap. Tab. 13. Fig. 1. e. 1.

Reaum Inf. 2. Tab. 21.

Frisch. Inf. 6. Tab. 8.

Degeer. Inf. 1. Tab. 23. Fig. 12.

Roef. Inf. 1. phal. 2. Tab. 19.

Fab. Spec. Inf. 2. 178. 52.

The Puss Moth appears in the winged state about the latter end of May, or early in June.

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The Caterpillar, from which it is produced, is of a very extraordinary form, and has rather the appearance of a formidable or venomous creature, than the larva of a Moth: it feeds on Willows and Poplars, and is generally found in great plenty where those trees grow, in the month of *July*. The two tails, or crimson filaments at the extremity of the body, are protruded or concealed within their base at the creature's pleasure; when protruded they have a continual writhing or vibratory motion.

It passes to the Pupa state in *August*.

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PLATE LXXXVI.

CARABUS CYANOCEPHALUS.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ taper. Thorax and shells margined. A large appendix at the base of the posterior thighs. Five joints in each foot.

SPECIFIC CHARACTER.

Thorax and feet orange colour. Head and shells blue green.

Linn. Syst. Nat. 2. 671. 21.—*Fn. Sv.* 794.

CARABUS, &c. *Degeer Inf.* 4. 100. 17. *Tab.* 3. *Fig.* 17.

BUPRESTIS, &c. *Geoff. Inf.* 1. 149. 40.

CANTHARIS, &c. *Raj. Inf.* 89. 1.

Schæff. Icon. Tab. 10. *Fig.* 14.

FIG. I. The Natural Size.

FIG. II. The Magnified Appearance of the Upper-side.

FIG. III. The Under-side, Natural Size.

This minute Insect is found in the months of *May* and *June*.





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PLATE LXXXVII.

SPHINX FUCIFORMIS.

CLEAR WINGED HUMMING SPHINX.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ thickest in the middle. Wings, when at rest, deflexed. Fly slow, morning and evening only.

SPECIFIC CHARACTER.

Antennæ black. Head and Thorax bright yellow; Body rich brown, except the last joints, which are yellow; Abdomen bearded with black. Wings transparent, with a broad dark brown border; Veins dark.

Linn. Syst. Nat. 2. 803. 28.—*Fn. Sv.* 1092.

SPHINX, &c. *Geoff. Inf.* 2. 82.

Roef. Inf. 3. Tab. 38.

4. Tab. 34. Fig. 1—4.

Bradl. nat. 26. Fig. 1. B.

Sulz. Inf. Tab. 15. Fig. 90.

Poda Inf. Tab. 2. Fig. 6.

Schæf. Icon. Tab. 16. Fig. 1.

SESIA Fuciformis. Fab. Sp. Inf. 2. 156. 11.

The Caterpillar of this Insect feeds on the wood of Willows, and is concealed within the solid substance of the trunk, in the same manner

manner as the larva of the *Sphinx Apiformis* *, and *Sphinx Tipuliformis* †, are concealed within the wood of the Poplar, and stalks of Currant bushes.

Fabricius describes the Caterpillar, green with a lateral line of yellow; spine at the end of the body red. *Harris* observes, that in the winged state the fly is found in Gardens, on flowers, in May; *Fabricius* writes on the Honey-suckle, &c.

It is very rare; one specimen has been taken this season on *Epping-Forest*.

* Plate XXV. of this Work.

† Ibid.





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P L A T E LXXXVIII.

FIG. I.

APIS TERRESTRIS.

HUMBLE BEE.

HYMENOPTERA.

Wings four, generally membranous. Tail of the females armed with a sting.

GENERIC CHARACTER.

Jaws, with a trunk bent downwards. Antennæ elbowed in the middle; first joint longest. Wings plain. Body hairy. Abdomen connected by a pedicle.

SPECIFIC CHARACTER.

Black, very hairy, with a yellow belt on the Thorax, one also across the Abdomen. Anus white or yellowish.

A. T. *hirsuta nigra, thoracis cingulo flavo, ano albo.*

Syst. Ent. 379. 5.—*Linn. Syst. Nat.* 2. 959. 41.

—*Fn. Sv.* 2709.

Bombylus major niger, linea duplici transversim ducta lutea, alia supra scapulas, alia per medium abdominis, imo abdomine albo. Raj.

Inf. 247. 5.

Mouff. Inf. 53. t. 2.

Goed. Inf. 2. tab. 46.

Bradl. nat. tab. 26. fig. 1. D.

Reaum. Inf. 6. tab. 3. fig. 1.

Frisch. Inf. 9. tab. 13. fig. 1.

The manners of the common Humble Bee are too well known to require elucidation; its dwelling is formed very deep in the earth; it

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comes forth when the sun shines to extract the melliferous moisture of flowers, and is perfectly harmless unless when irritated. Linnæus describes the Anus of the *Apis Terrestris* white, but I find this is not always constant; I have several specimens that agree with the one represented in the annexed plate.

I have compared them with the specimen in the Linnæan Cabinet; they perfectly agree in every respect except in the brown or yellow colour of the extreme part of the Abdomen: they are certainly only varieties.

FIG. II.

APIS LAPIDARIA.

RED-TAIL BEE.

HYMENOPTERA.

A P I S.

SPECIFIC CHARACTER.

Black, hairy, Anus red-orange colour.

A. L. hirsuta atra, ano fulvo. Syst. Ent. 381. 14. habitat lapidum in acervis.

Linn. Syst. Nat. 2. 960. 44.—Fn. Sv. 1701.—

Geoff. Inf. 2. 417.

Bombylius maximus totus niger, exceptis duobus extremis abdominis annulis rufis. Raj. Inf. 246. 1. Scop. Carn. 813.

Frisch. Inf. 9. p. 25. Fig. 2.

Reaum Inf. 6. t. 1. f. 1. 4.

Schæf. Icon. Tab. 69. Fig. 9.

In the Linnæan Cabinet, (now in the possession of Dr. Smith) I find under the name *Apis Lapidaria* two insects, so very different in size, that it certainly will admit some doubt whether they ought to be

considered as the same species: Linnæus does indeed, notice this dissimilarity of their size in his description, and says one is three times larger than the other, &c. whence we may conclude that it was after mature deliberation he had ventured to place the smallest as a variety of the other*.—I do not know whether the largest has ever been taken in England; the specimen of it, in the Linnæan Collection, is a Swedish Insect: the smallest (which we have figured) is well known as a native of this country.

It is not found so frequently as most other species of the *Apis* genus; it lives among heaps of loose stones; its honey is strong.

FIG. III.

TENTHREDO VITELLINÆ.

HYMENOPTERA.

GENERIC CHARACTER.

Abdomen of equal thickness, and closely united to the thorax. Sting serrated, between two valves. Second wings shortest.

SPECIFIC CHARACTER.

Antennæ clavated. Abdomen above black, very hairy, with a lateral line of rufous. Legs yellowish. Thighs behind dentated.

T. V. Antennis clavatis, abdomine supra nigro, lateribus rufis, femoribus posticis dentatis. *Syst. Ent.* 318. 6.

T. V. Antennis clavatis, ore elabiato, abdomine rufo dorso nigro, femoribus posticis dentatis.

Linn. Syst. Nat. 2. 921. 5.—*Fn. Sv.* 1535.

Stræm. Sundm. 171. *Tab.* 10. *Fig.* 11.

* "Varietas triplo minor, vix distincta."

Larva viridescens per aperturam ante anum tanquam e siphone aquam
expulit. *Fabricius. Spec. Inf. 1. 407. 7.*

The Larva of this species is found on the Alder, Osier and Willow;
it is large, of a green colour, and at first sight, greatly resembles the
Caterpillars of some Lepidopterous Insects.

When it first appears from the Chrysalis very little of the black of
the Thorax and Abdomen can be seen, those parts being at that time
thickly clothed with long brownish hairs.





P L A T E LXXXIX.

PAPILIO ANTIOPA.

CAMBERWELL BEAUTY.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ clavated. Wings, when at rest, erect. Fly in the day time,

SPECIFIC CHARACTER.

Wings angulated, rich purple-brown, with a pale yellow external border; and an intermediate dark border, with a row of bluish eyes; on the anterior margin of the first wings two long yellowish spots.

—*Alis angulatis nigris, limbo albida.*

Linn. Syst. Nat. 2. 776. 165.—*Fn. Sv.* 1056.

Geoff. Inf. 2. 35. 1.

Papilio maxima nigra, alis utrisque limbo lato albo cinctis.

Raj. Inf. 135. 136.

Jonst. Inf. 1. 9. & 11.

Schæff. Elem. Tab. 94. *Fig.* 1.

— *Icon. Tab.* 70. *Fig.* 1. & 2.

Sulz. Inf. 1. *Tab.* 14. *Fig.* 85.

Roef. Inf. 1. *Pap.* 1. *Tab.* 1.

Esp. Pap. 1. *Tab.* 12. *Fig.* 2.

Seb. Mus. 4. *Tab.* 32. *Fig.* 1, 2.

Bergstræfs. 2. *Tab.* 39. *Fig.* 1. 2. 3. 4.

Wilk. Pap. 58. *Tab.* 2. *a.* 10.

Dageer. Inf. 1. *Tab.* 21. *Fig.* 8. 9.

The *Papilio Antiopa* is found in every part of Europe; in Germany particularly it is very common; it is as frequent in America as in Europe, and is esteemed as a rarity only in this country: it is, indeed, sometimes found in abundance with us, but as its appearance is neither annual nor periodical, it is generally valued by English Collectors.

There have been several instances of this Insect being found in different parts of the country in mild seasons, as plenty as the Peacock, or Admirable, Butterflies; in the summer of 1793 particularly, they were as numerous in some places as the common garden White Butterfly is usually near London.

But as a proof that its appearance does not altogether depend on the temperature of the weather, we need only adduce, that not a single specimen has been taken this season, although it has been one of the most favourable for all kinds of Insects that can be recollected; and many species of Moths and Butterflies, which have not been seen for several years before, have been taken at Combe-Wood, Darn-Wood, and similar adjacent parts, during summer, in plenty.

It is from the uncertainty of its appearance that we have such different, and, seemingly, irreconcilable accounts of the abundance and scarcity of this Butterfly; it was certainly well known as a native of this country to former Collectors, yet it received only a few years since the new name *Grand Surprise*; this name, which was given by Moses Harris, or by some of the company of Aurelians, of whose society he was a member, was evidently intended as a significant expression of their admiration, not of the beauty of the Insect, but of the singular circumstance of the species remaining so long in those very places where the most diligent researches of preceding Collectors had been made in vain; of their unwearied industry they were well persuaded, and were therefore unable to account for the appearance of a numerous brood of large Insects, which must have remained concealed many years, or been lately transported to those places.

Harris, in his Aurelian, calls it the Camberwell Beauty, though in his list of English Butterflies Hawk-Moths, and Moths, he uses the name *Grand Surprise*: we mention this circumstance, as it appears very inconsistent that the new name he adopts in one work, and the
old

old one he should have discarded in the other, are equally and indiscriminately used in the several editions of both; we still find it in the Aurelian, "*Camberwell Beauty*," in the other, "*Grand Surprise*," from which it might be readily inferred, that he meant two distinct Insects, were it not for the addition of the Linnæan name *Pap. Antiopa*.

In the general description of this Insect in the Aurelian, Harris does not say that it was scarce at that time (1775), which he certainly would if it had been so; but Berkenhout, in his outlines of Natural History, (1789) adds, after its specific character, that it is "very rare in this kingdom." To reconcile those accounts, we can only observe, that no Insect is more uncertain as to the time of its appearance; that though found in abundance in one season, it may not be seen in the next, or even for several successive years; it will then appear in small or large quantities, for one, two, or more seasons, and again disappear for many years as before.

The English specimens differ from those of other countries in the colour of the light exterior border of the wings; in the former, that part is of a very pale yellow brown, inclining to a dirty white; in the latter, it is of a deep yellow, marked and spotted with brown. *Fabricius* notices this difference, and says they are varieties.

The Caterpillars feed on the Willow, and are generally found on the highest branches; they cast their skin early in *July*, and pass to the Chrysalis, as represented in the plate. The underside of the Butterfly is of a black brown, with irregular dark streaks; the yellowish border is visible on that side,

PLATE XXXIX

As one of the first things to be done in the study of the history of the United States, it is necessary to have a clear and accurate knowledge of the geographical situation of the country. This is especially true in the case of the early history, when the boundaries of the colonies were not clearly defined, and the extent of the territory was not known.

The first thing to be done is to determine the extent of the territory. This can be done by consulting the maps of the time, and by studying the accounts of the early explorers. It is also necessary to know the names of the various tribes of Indians who lived in the country, and the names of the various colonies. This information is necessary for a correct understanding of the early history of the United States.

The second thing to be done is to determine the date of the various events. This can be done by consulting the chronicles of the time, and by studying the accounts of the early explorers. It is also necessary to know the names of the various tribes of Indians who lived in the country, and the names of the various colonies. This information is necessary for a correct understanding of the early history of the United States.

The third thing to be done is to determine the names of the various tribes of Indians who lived in the country. This can be done by consulting the accounts of the early explorers, and by studying the names of the various tribes mentioned in the early history of the United States. It is also necessary to know the names of the various colonies.

The fourth thing to be done is to determine the names of the various colonies. This can be done by consulting the accounts of the early explorers, and by studying the names of the various colonies mentioned in the early history of the United States. It is also necessary to know the names of the various tribes of Indians who lived in the country.

The fifth thing to be done is to determine the names of the various tribes of Indians who lived in the country. This can be done by consulting the accounts of the early explorers, and by studying the names of the various tribes mentioned in the early history of the United States. It is also necessary to know the names of the various colonies.

The sixth thing to be done is to determine the names of the various colonies. This can be done by consulting the accounts of the early explorers, and by studying the names of the various colonies mentioned in the early history of the United States. It is also necessary to know the names of the various tribes of Indians who lived in the country.



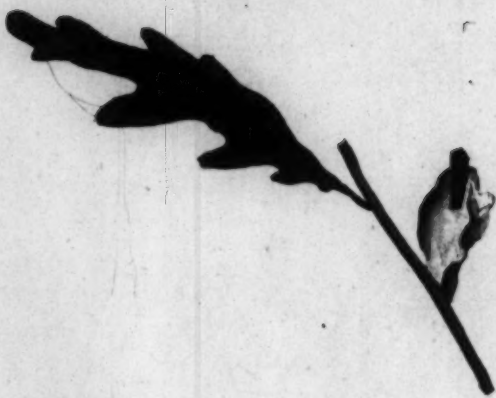


PLATE XC.

PHÆLÆNA LÆFLINGIANA.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the base. Wings in general contrasted when at rest. Fly by night.

TORTRIX.

SPECIFIC CHARACTER.

First wings yellowish, or buff colour, marked with transverse short streaks of red, or brick colour, also two irregular marks of the same colour, resembling *XX*, on the anterior margin. Under wings and body lead colour.

P. Alis anticis flavis luteo reticulatis duplici xx notatis.

Syst. Ent. 652. 42.

Linn. Syst. Nat. 2. 878. 305.—*Fn. Sv.* 1323.—

Clerk. Phal. Tab. 10. *Fig.* 6.

This little Moth has great affinity with the *Phal. Forskablina* of Linnæus, the wings are indeed more angulated, but the form of the *XX* on the upper wings are nearly the same, and in the general colours both of the upper and under wings they perfectly agree.

Phal. Læflingiana is found in the greatest abundance on the Oak, in the month of April and May, in the Caterpillar state, and in July every Tree that will afford them a moist retreat during the heat of the day, conceals numbers in the winged state; morning and evening they are on the wing, they come forth at day break, sport about the bushes till after sun-rise. and then retire among the thickest Oak boughs; a little before sun-set they come forth again, but conceal themselves as before about twilight.

The Caterpillars are of a fine green colour, beset with black specks, the head is shining black, a collar of the same colour passes round the first joint, or annulation of the body next the head, but a narrow belt of white passing between, separates the black of the head from the shoulders. It is a brisk creature, and the thread which it spins is of a very strong texture.

It passes to the Chrysalis state in the leaf of the Oak, as shewn in the plate.

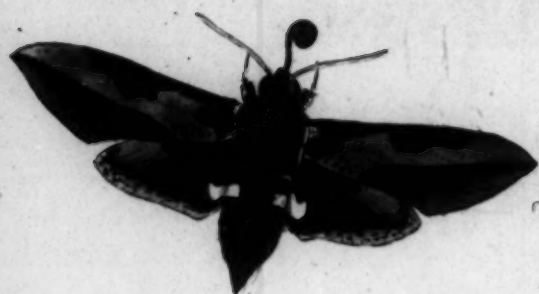
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P L A T E XCI.—XCII.

SPHINX EUPHORBIAE.

SPOTTED ELEPHANT SPHINX,

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ thickest in the middle. Wings, when at rest, deflexed.
Fly slow, morning and evening only.

SPECIFIC CHARACTER,

Superior wings light brown, with spots, and broad stripes of dark olive. Inferior wings red, marked with black and olive.

Sphinx Euphorbiae alis integris fascis, vitta anticis pallida, posticis rubra. *Syst. Ent.* 541. 17.

Linn. Syst. Nat. 2. 802. 19.—*Fn. Sv.* 1086.—

Mus. Lud. Vir. 356.

Sphinx Euphorbiae alis integris griseis, fasciis duabus virescentibus posticis rufis basi strigaeque nigris, antennis niueis. *Fab. Spec. Inf.* 2. 146. 32.

Sphinx spirilingias, alis viridi fulvo purpureoque varie fasciatis et maculatis, subtus purpureis. *Geoff. Inf.* 2. 87. 11.

Drury Inf. 1. Tab. 29. Fig. 3.

Raf. Inf. 1. Phal. 1. Tab. 3.

Reaum. Inf. 1. Tab. 13. Fig. 1. 4. 5. 6.

Degeer. Inf. 1. Tab. 8. Fig. 6. 11.

Schæff. Icon. Tab. 99. Fig. 3. 4.

Frisch. Inf. 2. Tab. 11.

SPOTTED ELEPHANT *Harris. Aurel. pl.* 44.

The Sphinx *Euphorbiae*, considered as a native of this country, is without exception the rarest species of the genus we have : and if we omit the *Sp. Porcellus*, *Lineata*, *Atropos*, with a very few others, we have no indigenous species that can by any means be compared with it as a rare, or, we may add, beautiful Insect.

Drury has given a figure of the Sphinx without its changes among his rare Insects, but as a native of a foreign country : and before the time of *Harris* it was frequently an object of discussion among *Aurelians*, whether it ever had been taken in *England*; *Harris* in his work, expresses himself thus, " It has been long in dispute whether " the Spotted Elephant was a native of this island ; but it is now past " a doubt, as I have had the good fortune to find a Caterpillar of this " Moth in marshy ground at *Barnsray*, near *Crayford* in *Kent*, about " the middle of *August* * ; it was better than three inches long, of a " dark brown colour ; the horn at the tail part, which was about half " an inch long, appeared long and glossy. The head was nearly the " size of a small pea, of a lightish yellow, brown, or tan colour. I " tried various herbs to bring it to feed, but my attempts were fruit- " less, and it died for want †. The Chrysalis in the plate was sent " me from *Belleisle* in *France* ; and the Moth was produced from it " about the beginning of *June*."—*Harris's Aurelian*, plate 44.

We are not informed of more than two similar circumstances that may place its existence in this country beyond dispute ; a damaged specimen of the Fly has been taken at *Bath*, and is in our cabinet ; and *Mr. Curtis*, author of the *Flora Londinensis*, &c. found four of the Caterpillars last summer in *Devonshire*.

In the Caterpillar state it frequently changes its skin, and appears as frequently to alter its appearance ; we cannot else account for the dissimilarity that prevails among all the coloured representations of the Insect in that state that have come under our inspection ; in *Roesel's Hist. Inf.* we find a figure of the Caterpillar apparently in the last skin,

* 1778.
indicates.

† It feeds on plants of the *Euphorbia* genus, as its specific name

that very nearly corresponds with our specimen; but that figured by Harris does not agree with either, in the form or number of the spots. At an early stage of its growth the Caterpillar, according to Rœsel, is bright yellow, with black patches, and minute white specks.

The figure in plate XCII. is copied from a most perfect specimen of the Caterpillar, and which is now in our possession; but as we cannot assure our Subscribers that it was found in *England*, we have been careful to add it in a separate plate, that so it may either be included in the volume with the Sphinx and Pupa, or be excluded with propriety.

The first of the two plates is a photograph of the fossilized remains of a plant, showing a cross-section of a stem with several small, rounded, and slightly flattened, lobes or segments arranged in a ring. The segments are separated by distinct, slightly raised, and somewhat irregular lines, giving the appearance of a segmented or jointed structure. The overall shape is roughly circular, but the segments are not perfectly uniform in size or shape.

The second plate is a photograph of a similar fossilized plant structure, but it appears to be a different specimen or a different part of the same plant. It also shows a cross-section of a stem with segmented lobes, but the arrangement and shape of the segments are slightly different from the first plate. The segments are more elongated and pointed towards the center, and the lines separating them are more pronounced and regular.

The third plate is a photograph of a fossilized plant structure, showing a cross-section of a stem with several small, rounded, and slightly flattened, lobes or segments arranged in a ring. The segments are separated by distinct, slightly raised, and somewhat irregular lines, giving the appearance of a segmented or jointed structure. The overall shape is roughly circular, but the segments are not perfectly uniform in size or shape.

The fourth plate is a photograph of a fossilized plant structure, showing a cross-section of a stem with several small, rounded, and slightly flattened, lobes or segments arranged in a ring. The segments are separated by distinct, slightly raised, and somewhat irregular lines, giving the appearance of a segmented or jointed structure. The overall shape is roughly circular, but the segments are not perfectly uniform in size or shape.

The fifth plate is a photograph of a fossilized plant structure, showing a cross-section of a stem with several small, rounded, and slightly flattened, lobes or segments arranged in a ring. The segments are separated by distinct, slightly raised, and somewhat irregular lines, giving the appearance of a segmented or jointed structure. The overall shape is roughly circular, but the segments are not perfectly uniform in size or shape.

The sixth plate is a photograph of a fossilized plant structure, showing a cross-section of a stem with several small, rounded, and slightly flattened, lobes or segments arranged in a ring. The segments are separated by distinct, slightly raised, and somewhat irregular lines, giving the appearance of a segmented or jointed structure. The overall shape is roughly circular, but the segments are not perfectly uniform in size or shape.

The seventh plate is a photograph of a fossilized plant structure, showing a cross-section of a stem with several small, rounded, and slightly flattened, lobes or segments arranged in a ring. The segments are separated by distinct, slightly raised, and somewhat irregular lines, giving the appearance of a segmented or jointed structure. The overall shape is roughly circular, but the segments are not perfectly uniform in size or shape.

The eighth plate is a photograph of a fossilized plant structure, showing a cross-section of a stem with several small, rounded, and slightly flattened, lobes or segments arranged in a ring. The segments are separated by distinct, slightly raised, and somewhat irregular lines, giving the appearance of a segmented or jointed structure. The overall shape is roughly circular, but the segments are not perfectly uniform in size or shape.

The ninth plate is a photograph of a fossilized plant structure, showing a cross-section of a stem with several small, rounded, and slightly flattened, lobes or segments arranged in a ring. The segments are separated by distinct, slightly raised, and somewhat irregular lines, giving the appearance of a segmented or jointed structure. The overall shape is roughly circular, but the segments are not perfectly uniform in size or shape.





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P L A T E X C I I I .

F I G . I .

S P H E X S A B U L O S A .

HYMENOPTERA.

Wings four, generally membranous. Tail of the female armed with a sting.

G E N E R I C C H A R A C T E R .

Jaws, without Tongue. Antennæ of sixteen joints. Wings incumbent, not folded. Sting rixed.

S P E C I F I C C H A R A C T E R .

Antennæ, Head, Thorax, and Legs black. Abdomen club-shaped; connected by a slender thread; orange colour; extremity black.

S P H E X S A B U L O S A . *Syst. Ent.* 346. 1.—*Linn. Syst. Nat.* 2. 941. 1.
—*Fn. Sv.* 1648.

S P H E X , &c. *Degeer Inf.* 2. 2. 148. 4. *tab.* 28. *fig.* 27.

I C H N E U M O N , &c. *Geoff. Inf.* 2. 349. 63.

Scop. carn. 770.

Frisch. Inf. 2. *tab.* 1. *fig.* 6. 7.

Sulz. Inf. *tab.* 19. *fig.* 120.

Schæff. Icon. 83. *fig.* 1.

Fab. Spec. Inf. 2. 442. 112. 1.

Sphex Sabulosa is a very busy and voracious Insect; it sometimes subsists on vegetable matter, frequently on small flies; we have never found it common near London.

F I G .

F I G . I I .

ICHNEUMON CIRCUMFLEXUS.

HYMENOPTERA.

GENERIC CHARACTER.

Jaws, without Tongue. Antennæ of more than thirty joints; long, filiform, vibrating. Sting within a bivalve sheath.

SPECIFIC CHARACTER.

Antennæ, Legs, and Body tawny. Head and Thorax black; as is also the lower part of the second joint of each hind Leg. Body curved.

ICHNEUMON CIRCUMFLEXUS. *Syst. Ent.* 341. 80.

Linn. Syst. Nat. 2. 938. 59.—*Fn. Sv.* 1631.

Not very common; found in *May* and *June*.





P L A T E X C I V .

F I G . I .

R H A G I U M B I F A S C I A T U M .

COLEOPTERA.

RHAGIUM*.

S P E C I F I C C H A R A C T E R .

Thorax spined. Shells olive brown, with three longitudinal stripes, and two yellow spots on each.

Fab. Spec. Inf. 1. 230. 4.

Sulz. Hist. Inf. Tab. 5. *Fig.* 8.

Linnæus never described this Insect, or he would have placed it in the *Cerambyx* genus. Fabricius has described it in his *Species Insectorum* under the specific name *Bifasciatum*; but he has separated it from the Linnæan genus, and given it the new generic title *Rhagium*: the *Cerambyx Inquisitor*, *C. Cursor* and *C. Noctis* of Linnæus, our present species, and *R. Ornatum*, are the only Insects Fabricius has included in the new genus *Rhagium*.

The *Rhagium Bifasciatum* is rare in this country; it is more frequent in France and Germany. It is generally found in putrid flesh.

F I G . II.

CERAMBYX MOSCHATUS.

COLEOPTERA.

G E N E R I C C H A R A C T E R .

Antennæ articulated, and tapering to the end. Shells long and narrow, four joints in each foot. Thorax with lateral spines or tubercles.

S P E C I F I C C H A R A C T E R .

Antennæ length of the body. Shells green, changeable, purple, copper colour, &c. Body dark blue.

CERAMBYX *Moschatus*, Thorace spinoso, elytris obtusis viridibus nitentibus, femoribus muticis antennis mediocribus.

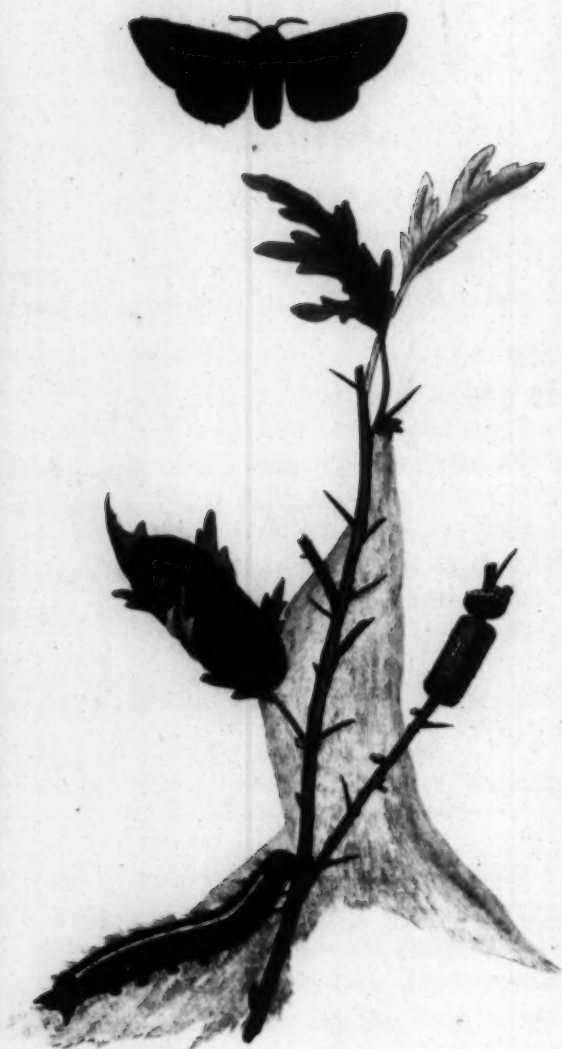
Linn. Syst. Nat. 2. 627. 34.—Faun. Suec. 652.

CERAMBYX *odoratus*, &c. Degeer. Inf. 5. 64. 2.

SCARABÆUS. Raj.—Frisch.—Lifter.

Few Insects vary more in their colours than the *Cerambyx Moschatus*; in some specimens the Green colour is very predominant, in others the Copper colour; in some the Purple is the most vivid, and again in others the colours are so blended as to appear altogether of a dull brown. They feed on the soft wood of willow trees; are very plenty in most places in summer, and emit a very powerful musk-like odour.





P L A T E X C V .

PHALÆNA NEUSTRIA.

LACKEY MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the base. Wings, in general, contracted when at rest. Fly by night.

SPECIFIC CHARACTER.

Antennæ feathered. Head, Thorax, Body, and Wings light brown; a dark broad wave across the middle of the upper Wings.

P. Neustria. B. alis reversis griseis, strigis duabus ferrugineis, subtus unica. *Syst. Ent.* 567. 42.—*Linn. Syst. Nat.* 2. 818. 35.

Phalæna pectinicornis elinguis, alis deflexis pallidis, fasciâ alarum transversali saturatiore. *Geoff. Inf.* 2. 114. 16.

Phalæna media tota cinerea. *Raj. Inf.* 214. 8.

Reaum. Inf. 2. Tab. 4. Fig. 1.—11.

Goed. Inf. 1. 57. Tab. 10.

Harris's Aurel. pl. 17.

Wilk. Pap. 21. Tab. 3. a 10.

Alb. Inf. 19. Fig. 27.

Frisch. Inf. 1. Tab. 2.

Roef. Inf. 1. Phal. 2. Tab. 6.

Fab. Spec. Inf. 2. 180. 58.

The Caterpillar of the *Ph. Neustria* are found in June, either on the white-thorn, black-thorn, or briar; sometimes on fruit trees: they pass to the *Chrysalis* state in July, and the Moths appear in August.

The female deposits her eggs with such particular care and regularity, that a cluster of them forms one of the most pleasing objects for microscopical investigation; they are crustaceous, of a light grey or bluish colour, elegantly marked at the broadest end; they are disposed with the greatest symmetry around the small branches of the thorn, and are so cemented together that they cannot readily be separated.—The appearance of a cluster is represented in our plate.

The eggs are laid in autumn, though they are not hatched till the ensuing spring. When the young Caterpillars burst forth, they form into societies, sometimes of thirty or forty individuals, sometimes of a much greater number; they immediately commence the formation of a spacious web, and if the weather be fine in two or three days, their work is completed; as however they increase in bulk, it is necessary to enlarge their dwelling, and this they manage either by adding new external coverings, or increasing and extending the windings within. They seldom pass to the Pupa form in those nests, but separate in search of a more convenient place for that purpose when they have attained their full size.

The Caterpillar, when preparing for its next state, weaves a large silky case; within which it forms another somewhat smaller; and thus enveloped by its double cone, it changes to the Pupa form. The Pupa is black, and may be just discerned through the two cases, as represented in our plate.

The figure of the perfect Insect is copied from a female specimen; the male is rather darker, and has the Antennæ more feathered.





P L A T E X C V I,

F I G. I.

CHRYSOMELA POLYGONI,

COLEOPTERA.

GENERIC CHARACTER.

Antennæ knotted, enlarging towards the ends. Corselet margined.

SPECIFIC CHARACTER.

Head, Shells, and underside blue green. Thorax and Thighs orange colour. Globules of the Antennæ of equal size.

C. Polygoni. Ouata cærulea, thorace femoribus anoque rufis.
Syst. Ent. 100. 32.—*Linn. Syst. Nat.* 2. 589. 24.—
Fn. Sv. 520.

Chrysomela, &c. *Geoff. Inf.* 1. 283. 4.

Chrysomela, &c. *Degser. Inf.* 5. 322. 26.

Reaum. Inf. 3. *Tab.* 17. *Fig.* 14. 15.

Schæff. Icen. Tab. 51. *Fig.* 5.

Tab. 161. *Fig.* 4.

Tab. 173. *Fig.* 4.

This pretty, though common Insect, is generally found on those plants which grow on the banks of ditches in the months of May or June.

F I G.

F I G. II.

CANTHARIS ÆNEA.

G E N E R I C C H A R A C T E R.

Antennæ taper. Thorax margined. Shells flexile. Sides of the Abdomen papillous, and folded. In each Foot five joints.

S P E C I F I C C H A R A C T E R.

Bright green. Shells red on the external sides; a small red spot on each side of the Corselet.

CANTHARIS *Ænea* thorace marginato, corpore viridi æneo elytris extrorsum undique rubris. Linn. *Syst. Nat.* 2. 648. 7.—

Fn. Sv. 708.

Cicindela viridi ænea, elytris extrorsum rubris.

Geoff. Inf. 1. 174. 7.

Thelephorus æneus, &c. *Degeer. Inf.* 4. 73. 6. *Tab.* 2. *Fig.* 16. 17.

Scarabæus, &c. *Raj. Inf.* 77. 12.

Schæff. monogr. 1754. *Tab.* 2. *Fig.* 10. 11.

Icon. Tab. 18. *Fig.* 12. 13.

Very plenty on flowers; often on thistles in May.

FIG. III.

STAPHYLINUS MAXILLOSUS.

COLEOPTERA.

GENERIC CHARACTER.

Antennæ globular. In each Foot five joints. Shells curtailed.
Wings covered. Tail defenceless, with two vesicles.

SPECIFIC CHARACTER.

Black. Antennæ of eleven globules. Jaws as long as the Head.
Shells grey, cover one third of the Abdomen. Length one inch.

Sp. Maxillofus. Pubescens niger, fasciis cinereis. *Syst. Ent.* 265. 3.
Linn. Syst. Nat. 2. 683. 3.—*Fn. Sv.* 841.

Staphylinus, &c. *Geoff. Inf.* 1. 360. 1. *Tab.* 7. *Fig.* 1.

Staphylinus balteatus, &c. *Degeer. Inf.* 4. 18. 4. *Tab.* 1. *Fig.* 7, 8.

Scarabæus. *List. Logu.* 391.

Fonst. Inf. Tab. 17. *Fig.* 1. 2. 3.

Bocc. Mus. 2. *Tab.* 31. *Fig.* AA.

Schæff. Icon. Tab. 20. *Fig.* 1.

Staphylinus olens, &c. *Müll. Faun. Fridricksd.* 23. 228.

Zool. Dan. 97. 1090.

Found chiefly in sandy places; may be often observed flying against dry banks when the sun shines; makes a buzzing noise; feeds on decayed vegetables, but more especially on the flesh of dead animals. Met with in May, June, and July.

FIG.

F I G. I V.

E L A T E R S P U T A T O R.

C O L E O P T E R A.

G E N E R I C C H A R A C T E R.

Antennæ taper, lodged in a groove under the Head and Thorax. Under side of the Thorax terminates in a point lodged in a cavity of the Abdomen. Spring to a considerable height when laid on their backs.

S P E C I F I C C H A R A C T E R.

Thorax black. Shells brown. Body black.

Linn. Syst. Nat. ed. 12. 182. 15.

Faun. Succ. 583.

We have several species of this genus that so nearly resemble each other, as scarcely to be distinguished on the most accurate investigation from the *E. Sputator*. They are found in great abundance in summer.

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P L A T E XCVII.

P H A L Æ N A L U C I D A T A.

DARTFORD EMERALD MOTH.

LEPIDOPTERA.

G E N E R I C C H A R A C T E R.

Antennæ taper from the base. Wings in general contracted when at rest. Fly by night.

S P E C I F I C C H A R A C T E R.

Fine lucid green, two white waves across the upper, and one across the under wings.

This species we have ever found peculiar to the woods about two or three miles beyond Dartford (Kent), particularly on the skirts of Darnwood, and near the banks of the river Thames at Queenhithe; it has probably never been taken elsewhere, or the name Dartford Emerald would not have been so generally adopted by Collectors.

It is not very frequent even in those local situations, nor can we learn that its larva and pupa state has been ascertained before; the species has neither been described by *Linneus* nor *Fabricius*; *Harris* does not mention it in his catalogue of English Moths, nor has a figure of it been given in any preceding publication that have come under our inspection.

The specific name is intended to express the lucid or transparent appearance of the Insect.

I am not certain whether in the larva state it feeds on the *Convolvulus*, although I found it on a plant of that kind; as its climbing stalks and tendrils were so intricately with branches of white-thorn, oak, and broom, as to preclude any accurate determination.

I kept them in a gauze cage for the space of a fortnight, and supplied them with fresh portions of the different plants every day, but could never observe them take the least subsistence during the whole time; they affixed their tails and hinder legs in the meshes of the gauze when I first removed them into the cage, and never shewed the least signs of life after; as they held firmly by the gauze, in the positions represented in our plate, I was very much disappointed to find on attempting to remove them, that two were dead; May 23d I observed that which was alive threw out a very delicate white thread, as if about to spin a cone; the body gradually shrivelled at the upper part, while the lower became proportionably thicker; two days after it fell to the bottom of the cage and became a pupa, at first of a whitish, and after of a fine green colour, marked at the narrow end with short black streaks. June 13th the Moth came forth.

At Fig. I. is shewn the head of the Caterpillar magnified; it is grey, with the jaws black, and is concealed beneath two horns or projections of the same green colour as the back.



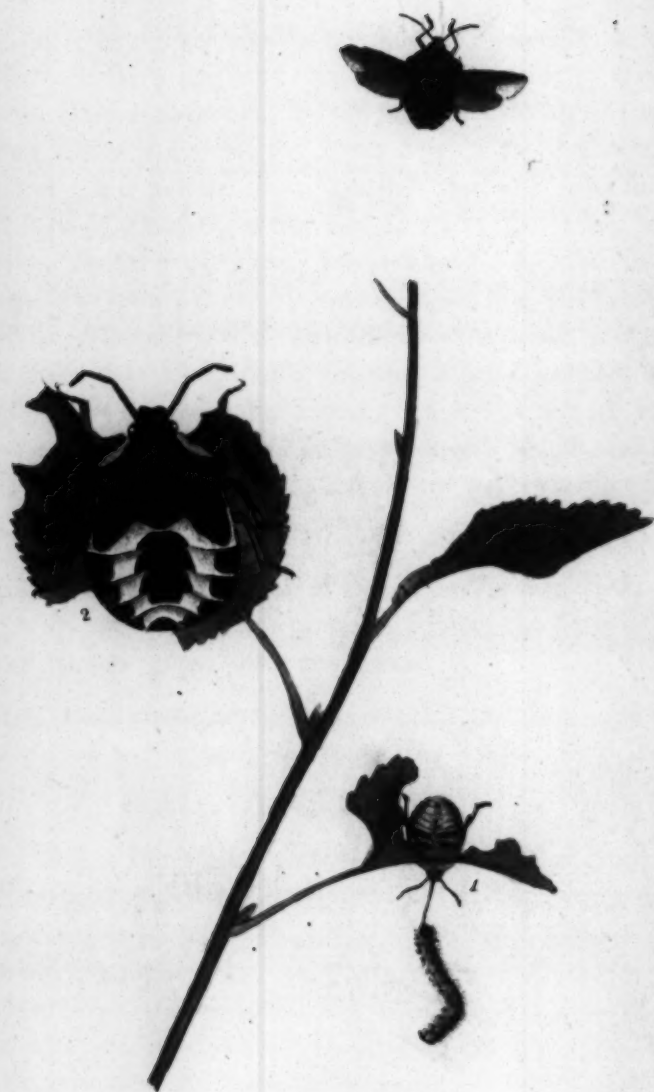


PLATE XCVIII.

CIMEX LURIDUS.

HEMIPTERA.

Shells or upper wings, semi-crustaceous, not divided by a straight suture, but incumbent on each other. Back curved downwards.

GENERIC CHARACTER.

Antennæ longer than the thorax. Thorax margined, in each foot three joints.

SPECIFIC CHARACTER.

Thorax spined, brown, tinged with green. Shells brown, with a dark spot on the center of each.

CIMEX Luridus. Thorace obtuse spinoso subvirescente, elytris griseis, macula fusca, clypeo emarginato.

Syst. Ent. 701. 25.

Fab. Spec. Inf. 2. 345. 38.

Fabricius is the only writer who has described this beautiful Insect; the description in the *Species Insectorum* is taken from a specimen in the collection of *Sir J. Banks, Bart.* A very minute Latin account is also given in a *Mantissa of Entomology* lately published by the same author, but in which he does not even mention the larva or pupa state, though their characters differ so essentially from the perfect Insect; we suspect in the two first states the Insect has hitherto re-

mained unknown, as in the perfect state it is very rarely met with. We have never seen a figure of either in any former publication.

June 10th, 1794.—I found one specimen in the larva state at Coombe-wood, Surrey; it was lurking beneath a branch of hazel, among some small Caterpillars that had formed a slight web on the leaves; as it was only served with vegetable food when confined in the breeding cage, it died in a few days.

June 26th, 1794.—I shook another specimen from the upper branches of a tall oak in Darn-wood, Dartford. At first it refused to eat, but shortly after I observed it suspended across a leaf, with its head downward, and its rostrum extended and transfixing through the head of a small Caterpillar which had unfortunately strayed into the box. I fed it after with dead worms, house flies, &c. from which it extracted nutritive moisture, and increased considerably in bulk.—June 29th it cast its exuviae—July the 2d. it cast another, when the perfect Insect came forth: the larva can scarcely be distinguished from the pupa state.

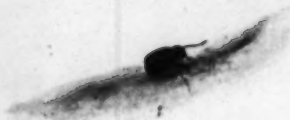
Fig. I. the natural size of the larva, with its manner of feeding.—underside.

Fig. II. magnified appearance of the upperside of ditto.—The perfect state shewn above.





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C H R Y S O M E L A B I L I T U R A L A .

C O L E O P T E R A .

Wings two, covered by two shells, divided by a longitudinal suture.

G E N E R I C C H A R A C T E R .

Antennæ knotted, enlarging towards the end. Corselet margined.

S P E C I F I C C H A R A C T E R .

Antennæ near the length of the body, black. Head, thorax, and underfide, black. Shells red, inclining to yellow brown, with a broad longitudinal black stripe extending from the base, nearly to the extremity of each.

This Insect is described in the manuscripts of T. MARSHAM, Esq. A. L. S. who favoured me with the specimen from which the figure in the annexed plate is copied; it does not appear to have been either figured or described in any preceding Natural History, and may therefore be esteemed as a rare Insect. The specific name *biliturala* is adopted from that Gentleman's manuscripts by permission.

Is found on Hornbeam in May.

PLATE XCIX.

CHRYSOMELA BIRITURATA.

Coloration.

Wings not covered by two cells, divided by a longitudinal line.

GENERAL CHARACTERS.

Antennae inserted, extending beyond the head. Compound eyes small.

SPECIFIC CHARACTER.

Antennae near the length of body. Head black, thorax and abdomen black. Spots red, inclining to brown above with a broad longitudinal black stripe extending from the base of the wings to the apex of each.

This insect is described in the manuscript of T. M. Ashmead, Esq. who has furnished me with the specimen from which the figure is taken. It is a very common species, and does not appear to have been before described or depicted in any preceding work. It is very common in the State of Ohio, and is also found in the State of Pennsylvania.

Is found on Hesperis in May.

REPORT

OF THE

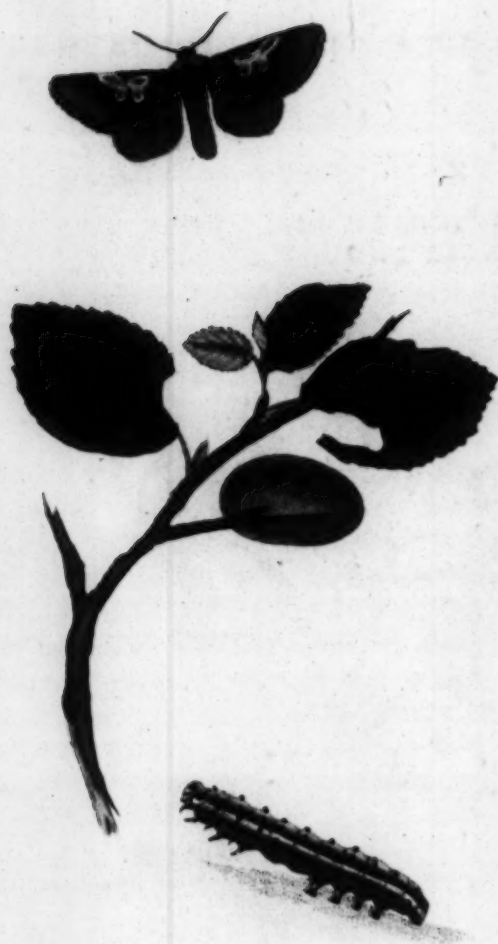
COMMISSIONERS OF THE

LAND OFFICE

IN RESPONSE TO A RESOLUTION OF THE

HOUSE OF REPRESENTATIVES





P L A T E C.

PHALÆNA CÆRULEOCEPHALA.

FIGURE OF EIGHT MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the base. Wings in general deflexed when at rest. Fly by night.

SPECIFIC CHARACTER.

Antennæ feathered. Superior wings brown, marbled with blueish green; the resemblance of a double figure of eight on each. Inferior wings lighter with a brownish scalloped margin.

PHALÆNA CÆRULEOCEPHALA elinguis cristata, alis deflexis griseis, stigmatibus albidis coadunatis.—*Linn. Syst. Nat.* 2. 826. 59.—*Fn. Sv.* 1117.

PHALÆNA pectinicornis elinguis, alis deflexis fuscis, macula duplici albo flavescente, geminata, *Geoff. Inf.* 2. 122. 27.

Raj. Inf. 163. 17.

Geed. Inf. 1. tab. 61.

Reaum. Inf. 1. tab. 18. fig. 6. 9.

Roef. Inf. 1. phal. 2. tab. 16.

Frisch. Inf. 10. tab. 3. fig. 4.

Merian. Europ. tab. 9.

Albin. Inf. tab. 13. fig. 17.

Wilks Pap. 6. tab. 1. a 12.

Haris. Aurel. pl. 30. a. b. c. d.

Fab. Spec. Inf. 2. 184. 72.

The Caterpillars of this species are found in their last skin about the latter end of May, or early in June; they change into chrysalis a few days after. The Moth is produced in August.

In the Caterpillar state they are met with in great plenty, either on the crab tree, black thorn, or white thorn; but are not so abundant in the last state, as many perish when in chrysalis.

They change into chrysalis within a hard case, which they fasten to the small stems of trees.

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PLATE CI.

CIMEX.

HEMIPTERA.

Shells, or upper wings, semi-cruustaceous, not divided by a straight suture, but incumbent on each other. Beak curved downward.

GENERIC CHARACTER.

Antennæ longer than the thorax. Thorax margined. In each foot three joints.

FIG. I. II. III.

CIMEX QUADRIPUNCTATUS.

SPECIFIC CHARACTER.

Antennæ yellow. Eyes black. Head and thorax yellowish orange colour; four distinct black spots, and a transverse band of the same on the latter. Wings yellow, with an orange shade, and streaked with black. Legs and body bright orange.

This very rare and non-descript species is distinct from the *Cimex friatus*, with which it has been supposed to have some affinity; it is smaller, the head, thorax, and body are very different, though in the colours of the wings they nearly correspond.—The four black spots on the thorax furnish our specific distinction.

Fig. I. natural size. Fig. II. and Fig. III. the Insect magnified.

F I G. I V.

C I M E X F E S T I V U S.

S P E C I F I C C H A R A C T E R:

Head, thorax, body and shells red, with black spots; six black spots on the thorax. Inferior wings pale brown.

C. FESTIVUS. Ovatus nigro rubroque varius, thorace punctis sex nigris, alis fuscis, margine albido. *Fabric. Syst. Ent.* 714. 87.

Linn. Syst. Nat. 2. 723. 57.

CIMEX DOMINULUS. *Scop. Carn.* 362.

Fuesly Inf. Helv. 26. 490.

Die Staatfwanze. *Panzer Faun. Inf. Germ.* 6. 19.

The *Cimex festivus* is very rarely taken in this country. Our specimen was found on a strawberry bed in june 1794.

F I G. V. V I.

C I M E X P A L L E S C E N S.

S P E C I F I C C H A R A C T E R.

Linear. Upper and under wings very pale brownish colour. Thorax and body pale yellow with two faint crimson longitudinal streaks from the antennæ to the extreme part of the body.

This little Insect is described in the manuscripts of T. Marshall, Esq. s. l. s. under the specific name *C. Pallescens*; it is by no means uncommon though it has never appeared in any former publication.

In the larva and pupa state it is a very beautiful creature, as the colours are much brighter than in the perfect Insect; they are generally found in April or May, among the grass and young plants that grow under hedges; in June or July they are taken in the winged state.—Fig. V. the pupa state, and Fig. VI. the perfect Insect; both of the natural size: in the annexed plate we have given the magnified appearance of the former.

In the first and paper has a very beautiful texture, as the
colours are much brighter than in the second leaf, they are green-
ish brown in April or May, when the leaves are young, then they
grow under light in June or July, they are taken in the winged
form, fig. V. the paper has, and 7. of V. the perfect leaf; both
in the natural size; in the natural size we have given the magnified
appearance of the former.

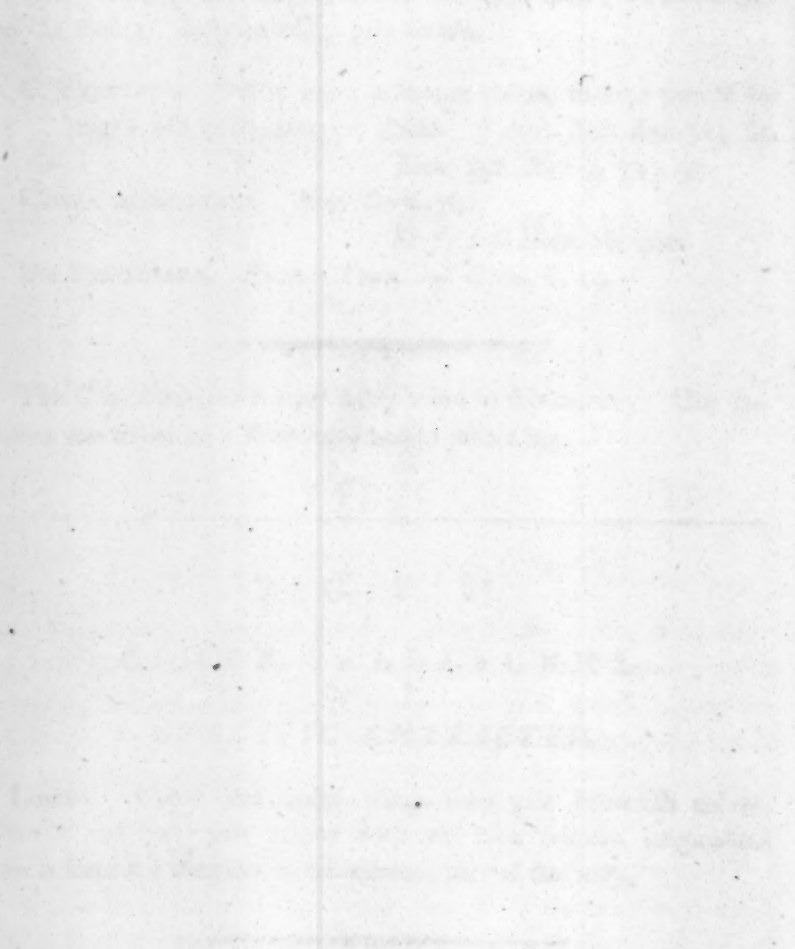
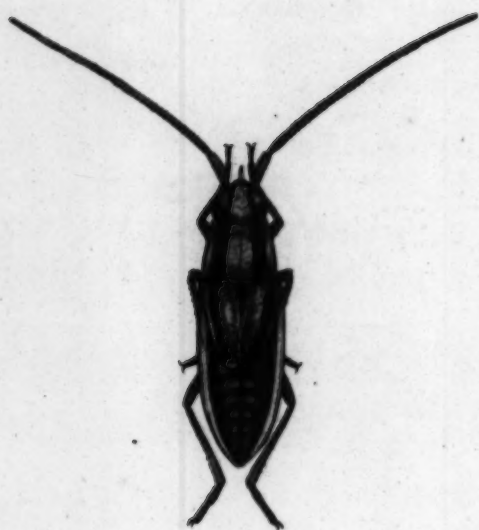


PLATE CL





[84]

PLATE CH.

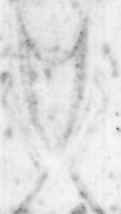
THE

LARVA

OF

CIMEX PALLESCENS

MAGNIFIED.



1875

1875

1875





PLATE CIII.

PHALÆNA QUERCUS.

LARGE EGGER MOTH.

LEPIDOPTERA.

GENERIC CHARACTER.

Antennæ taper from the base. Wings, in general, contracted, when at rest. Fly by night.

SPECIFIC CHARACTER.

Antennæ of the Male feathered. Wings dark brown, with a bright yellow bar across each, and a strong white spot on the center of each superior wing.—Female marked like the Male, but of a paler colour.

PHALÆNA QUERCUS. *Linn. Syst. Nat. 2. 814. 25.—Fn. Sv. 1106.*

PHALÆNA maxima fulva, alarum exteriorum superioritate intensius colorata, cum macula in media alba, inferiore dilutiore. *Raj. Inf. 142. 2.*

Merian. Europ. 1. tab. 10.

Harris. Aural. pl. 29. a. b. c. d. e. f.

Albin. Inf. tab. 18. fig. 25.

Reaum. Inf. 1. tab. 35.

Ann. miral. Inf. tab. 31.

Roef. Inf. 1. phal. 2. tab. 35.

Petio. Gazoph. tab. 45. fig. 5.

Geed. Inf. 1. 51. tab. 7.

The Caterpillars of this Moth feed on the White and Black Thorn, together with several herbaceous plants ; it has been observed to thrive better in the breeding cage when regularly supplied with fresh grass, to keep the former in a proper state of moisture.

The Female deposits her eggs in June or July, the Caterpillars are hatched in Autumn, and remain in that state during the Winter; about the middle of May it spins a large brown case, within which it passes to the Pupa state; the Moths appear in June.

In the Caterpillar state it is scarcely possible to distinguish the Male from the Female, except that the former is smaller than the latter; but in the last state their colours are entirely different, the Female being of a pale yellowish tint, inclining to fox colour, the Male is of a rich brown.

The Eggs are very curious, they resemble in shape those of a Hen, but are neatly mottled with dark brown.

The Caterpillars cast their skins several times, and always thereby assume a new appearance, though the general colours and character of the species may be traced through every stage. Our figure is copied from a very large and fine coloured specimen of the Female, that was met with at *Darent-Wood, Dartford*.

Explanation of the Figure shewn in Plate 103.

The Eggs of the natural size.

The Case which encloses the Pupa; the former is torn open to expose the latter within.





1



2

P L A T E C I V .

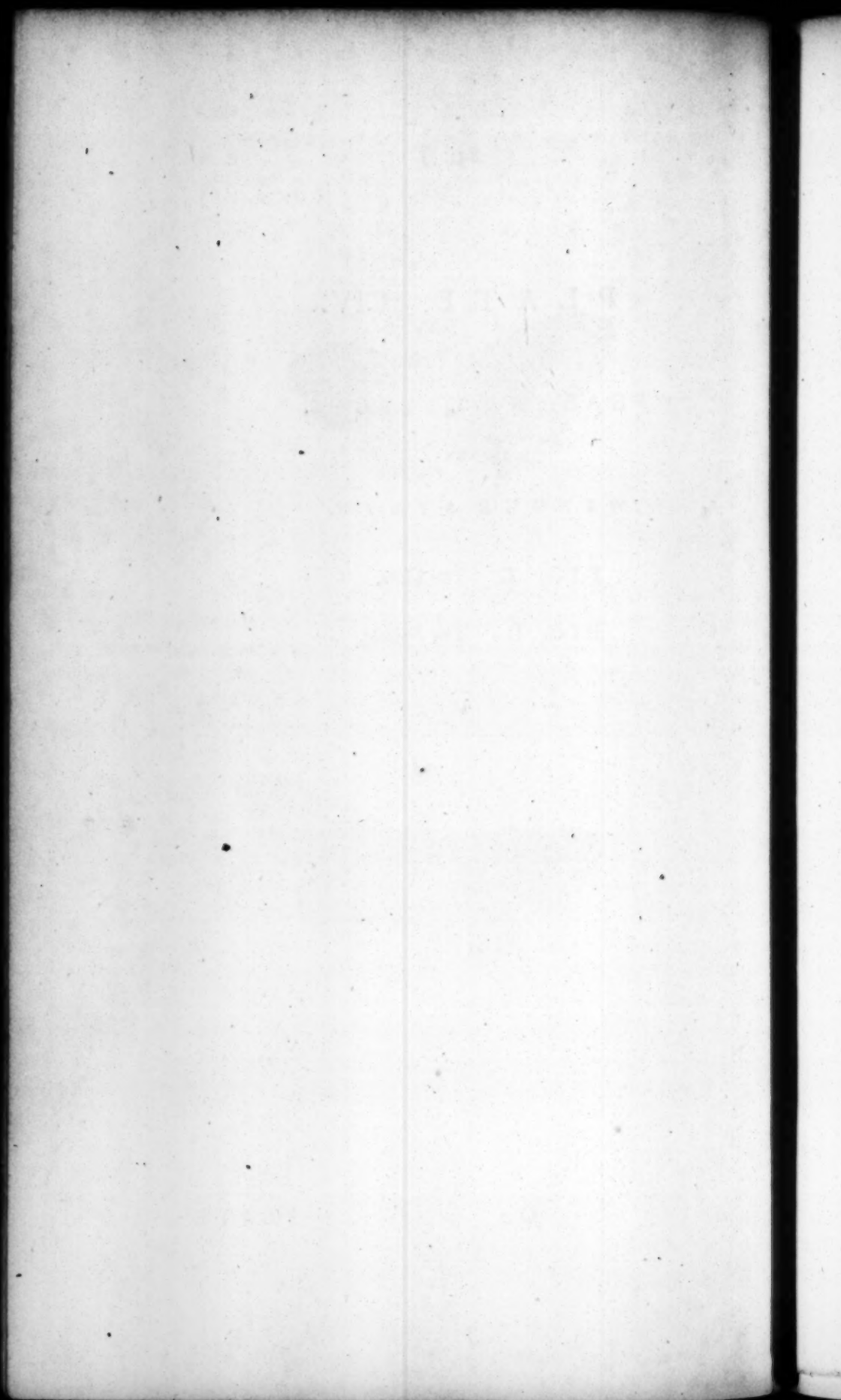
P H A L Æ N A Q U E R C U S .

I N T H E

W I N G E D S T A T E .

F I G . I . T h e M a l e .

F I G . I I . T h e F e m a l e .





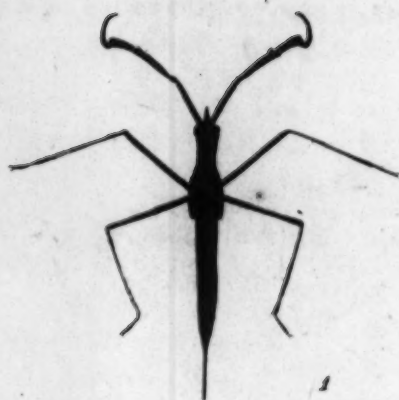
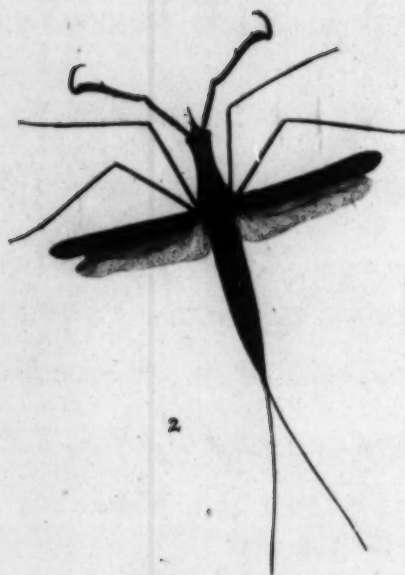


PLATE CV.

NEPA LINEARIS.

LINEAR WATER SCORPION.

HEMIPTERA.

GENERIC CHARACTER.

Antennæ, or Fore-legs cheliform. Wings crossed and complicated.

SPECIFIC CHARACTER.

Brown, cylindrical. Head small. Thorax long. Legs four. Abdomen red, with two long tails.

NEPA LINEARIS, manibus spina laterali pollicatis. *Linn. Syst. Nat.* 2. 714. 7. *Fn. Sv.* 903.

NEPA LINEARIS corpore angustissimo elongato, thorace longo, tibiis anticis in medio spina laterali. *Dageer. Inf.* 3. 369. 2. *tab.* 19. *fig.* 1. 2.

Locusta aquatica. Mouffeti. Raj. Inf. 59.

Fues. Inf. Helv. 25. 473.

Gronov. Zooph. 683.

Schæff. Icon. tab. 5. *fig.* 56.

Swammerdam Bibl. Nat. 1. 233: *tab.* 3. *fig.* 9.

Roef. Inf. 3. 141. *tab.* 23.

This singular species is by no means so common as the *Nepa Cinerea*, already figured in this Work. One specimen was taken at Ilford, in Essex, last September; and Thomas Walford, Esq; met with

with another in a bog near *Clare Priory, Suffolk* : the latter is preserved in the Museum of Mr. *Parkinson*.

In the Larva and Pupa state it is very rarely met with, as it lives in deep stagnant water ; the figure of the latter, which we have given at Fig. I. is copied from the only English Specimen of the Insect we have ever seen in that state ; it was taken out of a Pool, near *Epping*, in the month of June, 1790.

FIG. 2, the perfect Insect.

1871





P L A T E C V I.

FIG. I.

FIG. V?

P H A L Æ N A E M A R G A N A.

NOTCH WING.

LEPIDOPTERA.

G E N E R I C C H A R A C T E R.

Antennæ taper from the base. Wings in general contracted when at rest. Fly by night.

TORTRIX, *Linnaeus*.PYRALIS, *Fabricius*.

S P E C I F I C C H A R A C T E R.

First wings brown, with reticulated dark lines; the anterior margin deeply excavated in the form of a curve. Posterior wings light brown.

P. Emargana. Alis subcaudatis flavis fusco reticulatis fasciaque lata fusca, margine crassiori late emarginato. *Syst. Ent. Fab.* 651. 37.

The excavations of the superior wings of this Insect contribute such an air of novelty to its general appearance, that it might rather be considered as the effect of chance or design, on a single Insect, if we did not observe that character prevail through every specimen; we find two kinds of them in several cabinets in London, and we are in possession of a third that differs from either.

P

By

By most practical Entomologists they have been considered as distinct species, and they may be such; but as we are unwilling to create confusion by extending the number of species, we prefer admitting them as varieties under the Fabrician name *Emargana*.—We are more readily inclined to adopt this measure, as we have always found them at the same time of the year, in the same parts of the woods, and generally sporting together, which is not commonly observed of Insects that are not either varieties or differ only in sex.

They are rarely met with; our specimens were taken in June at Dartford.—They have been taken together at Caen-Wood, Hampstead.

They have not been described by Linnæus; but were known among Collectors by the (now obsolete) name *Excavana*.

At Fig. 5. is shewn one of the varieties; the third is much yellower but marked with similar reticulated strokes, and exactly corresponds in size and form with this figure.

FIG. II.

PHALÆNA ZOËGANA.

LEPIDOPTERA.

TORTRIX.

SPECIFIC CHARACTER.

First wings yellow, with a brown spot on the middle; exterior of each dark brown, with a large splash of yellow in the center. Second wings dark brown.

PHAL. *Zoëgana* alis flavis puncto medio furrugineo, postice ferrugineis macula flava. Linn. *Syst. Nat.* 2. 876. 289.

β. PHAL.

β. PHAL. *hamata* alis superioribus flavis puncto lituraque postica
hamata ferrugineis. Linn. Syst. Nat. 2. 876. 290.

Fn. Sv. 1309.

Clerk. Phal. tab. 4. fig. 4.

————— tab. 4. fig. 5. 6.

Fabri. Spec. Inf. 2. 280. 25.

Taken on Epping Forest in June.—We have rarely met with this
Insect.

FIG. III.

PHALÆNA QUERCANA.

LEPIDOPTERA.

TORTRIX.

SPECIFIC CHARACTER.

Antennæ very long. First wings pale pink, margined with yellow: yellow spots on the center. Inferior wings pale; underside tintured with pink.

PHAL. *Quercana* alis anticis flavis, maculis daubus costalibus
sulphureis. Fab. Syst. Ent. 652. 39.

PHALÆNA *fagana* Wien. Vers. 28. 7. tab. 1. a. b.

————— tab. 1. b. b.

The low oaks, and particularly such as are encircled with ivy, generally afford a shelter to numbers of this pretty Insect during the heat of the day; they are seldom found in the thickest of the wood, they seem to prefer the thick hedges by the road sides.

Is found in the months of May, June, and July.

FIG. IV.

PHALÆNA PANZERELLA.

LEPIDOPTERA.

TINEA.

SPECIFIC CHARACTER.

Long, narrow. Anterior wings pale clay colour, with a dark streak down the middle, and a few minute spots of the same colour near the apex. Posterior wings almost transparent, bluish, fringe very deep, of a clay colour.

This elegant Insect was found the latter end of autumn, 1794, among some high grass and water plants in the vicinity of Hampstead, and is now in the possession of the author.

It has certainly never been described or figured before; nor is it in the cabinet of any Entomologist within the circle of our friends; if we except a very distinct variety which is in the cabinet of Mr. Honey, Union-Street, Borough.

We have named it Panzerella in honour of the German Entomologist DR. GEORGE WOLFFGANG FRANZ PANZER, Author of *Faune Insectorum Germanicæ initia*, &c.

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PLATE ONE
OF THE
SERRANO ARCHAEOLOGY





P L A T E C V I I .

C U R C U L I O A R G E N T A T U S .

COLEOPTERA.

Wings two, covered by two shells, divided by a longitudinal future.

G E N E R I C C H A R A C T E R .

Antennæ clavated, elbowed in the middle, and fixed in the snout, which is prominent and horny. Joints in each foot four.

* * Snout short. Thighs dentated.

S P E C I F I C C H A R A C T E R .

Covered with fine green bronze scales. Antennæ and legs brown.

C. brevirostris femoribus dentatus; corpore viridi argenteo. *Syst.*

Ent. 155. 148. *Linn. Syst. Nat.* 2. 615. 75.

CURCULIO squamosus, viridi auratus. *Geoff. Inf.* 1. 293. 38.

CURCULIO *Urticæ*, &c. *Degeer. Inf.* 5. 219. 12.

Sulz. Hist. Inf. tab. 4. fig. 9. .

Fab. Spec. Inf. 1. 198. 218.

This elegant little Insect is very common during the summer in almost every situation. It generally appears in abundance in May and June.

At FIG. I. is shewn the natural size.

FIG. II. the magnified appearance.

P L A T E

PLATE VIII

CELESTIAL MECHANICS

THEORY OF THE MOTION OF THE HEAVENLY BODIES

BY J. H. VAN DER WAERDEN

Translated from the German by E. J. FLAHERTY

THE UNIVERSITY OF CHICAGO PRESS

CHICAGO, ILL., 1943

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1943

PLATE I

APRIL 1870

THE

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P L A T E C V I I I .

F I G . I .

A P I S L A P I D A R I A .

L A R G E R E D - T A I L B E E .

H Y M E N O P T E R A .

Wings four, generally membranous. Tail of the Female armed with a sting.

G E N E R I C C H A R A C T E R .

Jaws, with a trunk bent downwards. Antennæ elbowed in the middle, first joint longest. Wings plain. Body hairy. Abdomen connected by a pedicle.

S P E C I F I C C H A R A C T E R .

Entirely black except the tail, which is red.

Linn. Syst. Nat. 2. 960. 44.

Fn. Sv. 1701.

Geoff. Inf. 2. 417.

Fabri. Spec. Inf. 1. 477. 17.

In Plate LXXXVIII. of this work I gave a figure of the Small Apis Lapidaria, Red-tail Bee, which is well known as a native of this country; but declined including a figure of the largest kind, until I could affirm on credible authority it had been taken in England also.

I have lately had the good fortune to be satisfied in this particular; LORD WILLIAM SEYMOUR favoured me with the specimen from which

which the annexed figure is copied; his Lordship told me he met with it in Wiltshire last summer, with several other rare Insects, which will appear shortly in this work.

FIG. II.

APIS ACERVORUM.

A BLACK BEE.

HYMENOPTERA.

APIS.

SPECIFIC CHARACTER.

Entirely Black. Hairy.

APIS Acervorum hirsuta atra. Linn. Syst. Nat. 2. 261. 50.
 Fn. Sv. 1717.
 Schæff. Icon. tab. 78. fig. 5.

This species lives in the earth, it is not often met with near London. We received it through the same channel as the former.

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VOL. III.

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ERRATA to Vol. III.

Figures on the Plate annexed to Page 19—"for Plate LXXVIII,
read Plate LXXIX."

Plate XCVII, page 67, line 11, for Darnwood, read Darentwood.

— line 13, for Queenhithe, read Greenhithe.

Plate XCIX, for C. Biliturala, read Biliturata.

III. NO. 17 AT 17

the XCIX, page 15, line 1, for "Greenish", read "Greenish".
the XCIX, page 15, line 1, for "Greenish", read "Greenish".
the XCIX, page 15, line 1, for "Greenish", read "Greenish".

